IBM POUGHKEEPSIE
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001

Diagnostic Engineering Publications

1410/7010

Subject: Diagnostic Program T021C - Tape Multi-Channel and Interchangeability Test

Sequence Number 205, 206

Replaces T021B

This program is a two-phase program and uses a system and four channel control cards in Phase I.

In Phase II only a system control card is used.

Phase I

System Control Card	T021 001
Channel One Control Card	T021 002
Channel Two Control Card	T021 003
Channel Three Control Card	T021 004
Channel Four Control Card	T021 005

Phase II

System Control Card	T021

To provide an automatic branch to the next test after completion of one read pass, change phase two location (card no. column from

Corrects errors in T021B

1. Allows correct operation on 10K systems
2. Corrects rewind section
3. Saves TADS from Phase I, to allow similar operation in Phase II

Enclosures: 8 Pages
Card Deck for CARD ONLY SYSTEMS (as punched by UP51)
9 Cards - Card Loader (1-7) and 2 Core Clear
3 Cards No. 001 - 3 Data Cards
2 Card Execute Card

Distribution: 1410
7010
Other 1410/7010 installations with 729 or 7330 tape drives.

002
T021

T021C

TAPE MULTI-CHANNEL AND INTERCHANGEABILITY TEST

4/15/64

CONTENTS OF T021

NOTE CUSTOMER WRITES IN EVEN PARITY

4.xx.00.0 TEST DESCRIPTION

.00.1 MODIFICATIONS

This program replaces and obsoletes the prior version, and corrects errors in the rewind section, allows the program to run correctly on a 10K system, and saves TADS from Phase I for use by Phase II.

.00.2 DESCRIPTION

T020 should be run preceding T021. TAU and CPU should be operating correctly before running this test.

PURPOSE

As an interchangeability test; the purpose is to check the accuracy of data written on one tape drive, read on the same tape drive and all other tape drives in the system.

Multi-channel operation can be checked exclusively by repeating the write or read pass and not interchanging tapes between passes.
Overlap writing and reading is checked following each write and read tape instruction. The balance of overlap tape operation are covered in T020.

METHOD OF TEST

Any configuration of tape drives, (except drive 0) on any or all channels, can be tested.

To start the test all drives are given a rewind instruction.
The numbers of the ready drives are stored in a ready table. Variable length, fixed pattern records are then written on all ready drives. Record lengths (number of characters) are:

5	55	185	395	685
10	80	220	455	765
20	110	280	530	845
35	145	335	605	955

100 each.

100 of each record for a total of 2000 records are written.

If the overlap feature is available and TAD 4 normal, a check is made following each successful write to see if the program branched on the BOL instruction when it should have or didn't branch if not using overlap (TAD4A1). The write pass can be repeated if TAD3 is a 1.

During the read pass each record is checked for any I/O status errors and if none, compared to the record as it should have been written. Overlap (if available) is checked following each read to see if the program branched on the BOL instruction. Following each read pass a message notifies the operator to INTERCHANGE TAPE. If checking for interchangeability, the tapes should be interchanged systematically as often as desired. If checking multchannel and overlap operation only, press START. Make TAD3 a 1 to repeat the read pass automatically.

Load Mode operation is checked if TAD6 is a 1. Five consecutive word marks are placed over the last five characters of the pattern before writing any records. During the read pass each of the 2000 records are checked for missing word marks. An error typeout alerts the operator when a record with missing word marks is detected. The word marks are cleared before the program branches to the compare routine.

Tapes are rewound and an error summary typed out following each write and each read pass. Errors are handled as follows:

WRITE ERRORS

BNR(Not Ready) BWL(Wrong Length Record)	A word mark is placed over the drive number in the ready table eliminating the drive from the test.
BEF (End of Tape)	Tape is rewound and the drive eliminated from the test as for BNR and BWL.
BER(Data Check)	Data checks are counted in an error table.

READ ERRORS

BNR (Not Ready)	The drive is eliminated from the test.
BWL(Wrong Length Record)	Counted in error table.
BEF (Condition - Tape Mark)	Indicates end of read pass.
BER(Data Check)	Data checks are counted in an error table.

The operator will be notified of individual errors by a typeout similar to message 3, described on page 011 under TYPEOUTS.

The correlation between indicator number and type of error is as follows:

1	BNR L(Not Ready)
2	BCB (Busy)
4	BER (Data Check)
8	BEF (Condition)
B	BWL (Wrong Length Record)
A	BNT (No Transfer - never set)

The typeout for indicator 4, 8 and B is under control of TAD0; indicators 1, 2, A are typed out unconditionally.

One write error is counted as a temporary (TEMP) error. Two consecutive TEMP errors count as a SKIP error. Seven consecutive SKIPS count as a PERM error. This indicates bad tape and the drive is no longer used in the test.

One read error is counted as a temporary (TEMP) error; nine unsuccessful rereads count as a permanent (PERM) error.

Records which do not give a data check but compare unequal to the record as it should have been written will count as a compare (COMP) error.

This is a two-phase program. The read portion of the test will be read into memory following completion of the write phase.

.00.3 EQUIPMENT

This program will run on the 1410, 1410 Accelerator and 7010 computers. A 10K memory size is required for 2 channel operation. and a 20K memory size for 4 channel operation (7010).

All models 7330's and 729 tape drives can be used.

.00.4 CARD DECK

The program consists of 331 cards numbered 001 to 332 plus four execute cards, plus 7 load cards.

.00.5 E.C. LEVEL OF MACHINE

Not applicable.

4.xx.01.0 LOADING PROCEDURES

01.1 FROM CARDS (Load Program L1A preceding Card Deck)

A. 7010-1410 without Load Button.

1. Display Memory Location 00000

2. Alter to

```
v v          v
RL%1100011$.

v
X  □
y  ?
3
v
1  !
```

Enter according to channel location of the card reader.

3. Set to Run, Computer Reset and Start.

B. 7010 with Load Button

1. Computer Reset

2. Depress Load Button

01.2 FROM TAPE(Memory Dump Tape)

A. 7010-1410 without Load Button

1. Display Memory Location 00000

2. Alter to

```
v v          v
RL%B000011$.
v
X  □
v
3    ?
v
1  !
```

Enter according to channel location of the tape drive.

3. Set to Run, press Computer Reset.

B. 7010 with Load Button

1. Computer Reset

2. Depress Load Button

4.xx.02.0 OPERATING PROCEDURES

STANDARD TADS

TAD0	Loc. 01000	Not 1	Type individual errors when detected.
		1	Bypass individual error typeouts.
TAD1	Loc. 01001	Not 1	No loops
		1	Loop on read or write
TAD2	Loc. 01002	Not 1	No error halts
		1	Error halts
TAD3	Loc. 01003	Not 1	Single write or read pass
		1	Repeat write or read pass

SPECIAL TADS

TAD4	Loc. 01004	Not 1	Use overlap if available
		1	Don't use overlap
TAD5	Loc. 01005	Not 1	Odd parity
		1	Even parity
TAD6	Loc. 01006	Not 1	Move mode
		1	Load Mode

Before running the program, punch the system and channel control cards according to your system configuration. See the 1410/7010 Introduction for details.

For normal operations, TADs do not have to be inserted before running the program.

Before reading the test into memory, make the drives ready that are to be used in the test.

Following each read pass and the message INTERCHANGE TAPE if:

Multi-Channel test	Automatically loops if TAD 3 is a 1 or press START.
Interchangeability test	Systematically interchange tapes, make the drives ready at load point, then press START.

Any density may be used as long as the same density is used for writing and reading.

To read in the next test, press Computer Reset and Start when notified by an appropriate typeout.
To change the program so that after one write and one read pass the program will branch automatically to the next test; alter location 06277 (card No. 217 , column 55 from 1087 to 0400.

4.xx.03.0 OPERATING HINTS

The number of writes and reads for each length record may be altered by changing location 01008 from 100 to xxx for xxx. repeats.

Tape drives marked out of the test on the write pass because of a BNR, BWL, BEF or PERM WRITE ERROR will not be used during the read pass.

Because of memory space limitations, records which compare unequal must be displayed manually. Use TAD2 (1) to halt on a compare error.

To display the last record as read, display:

07000	Channel 1
08000	Channel 2
16000	Channel 3
17000	Channel 4

Until blanks are encountered.

This record can be compared to the appropriate record ID. No. in the appendix.

To display the pattern from the Console Printer, do the following:

Display index register 5 (location 00045).

Add the contents to 09000.

Display the resultant address. The first character should have a word mark, the last a word mark group mark.

Program halts follow each error typeout if TAD2 is a 1.

Scope loops are provided for each write and read instruction.

Do not read a tape which doesn't contain the full 2000 records. This will be done automatically on the first read pass. Do not interchange such tapes. An incomplete write can result from a BNR, BWL or BEF or PERM write error.

To read on a drive previously marked out of the test or not found ready when building the ready table, the drive number must be inserted manually into the ready table area as follows:

Channel 1 display 01E04	In the fourth position
Channel 2 display 01E42	past the last drive
Channel 3 display 01E80	number insert the
Channel 4 display 01918	required drive number.

To have the program skip a channel in which ready drives have been found, place a blank in location:

01E04	Channel 1
01842	Channel 2
01E80	Channel 3
01918	Channel 4

Asterisk insert switch must be on to run this test.

Noise record problems should be corrected before running this test. Reading a noise record will give false W.L.R. errors on following reads.

Program Run Time

One pass using 1 729 drive overlap on each of two channels requires approximately 2.75 minutes.

One pass using 1 729 drive overlap on each of four channels requires approximately 3.75 minutes.

4.xx.04.0 PROGRAM STOPS AND RESTARTS

STOPS

Write Phase

07152	Indicator error 2 or A. Press START to continue.

Read Phase

05327	Failed to branch equal or unequal.
05901	Failed to branch equal or unequal.
06575	Indicator error 2 or A. Press START to continue.

RESTARTS

Write Phase

02000	Start of Write Phase.

Read Phase

02000	Rewind then Start Read Phase.

Press COMPUTER RESET and START to restart either phase.

4.xx.05.0 TYPEOUTS

1. T021C

The test title appears once at the start of the test.

2. CH1 3 5
   CH2 3 7

   This typeout indicates which drives were ready and will be used in the test for each channel.

3. INDC. 4 TD23

   This indicates a data check (INDC. 4) on channel 2 drive number 3. Similar typeouts follow other types of errors (INDC. 1, 2, 8, A, B).

4. PERM WRITE ERROR TD 15

   This would indicate consecutive 7 skips on channel 1 drive number 5.

5. TDS CH 1
   1 3 4
   TEMP
   003 000 004
   SKIPS
   001 005 007

   Sample write summary for channel 1, drive Nos. 1, 3 and 4.

6. DIDNT BR OLAP, 23

   This would indicate a failure to branch overlap while writing a record on channel 2 drive number 3 (unconditional).

7. COMP ERROR TD22 REC ID. No. 5

   This notifies the operator of a compare error on channel 2 drive number 2. Compare to record ID. No. 5 in appendix.

8. DIDNT BR OLAP CH 1

   This would indicate a failure to branch overlap on channel 1 while reading tape (unconditional).

9. LOAD MODE FAILED CH. 1

   Unconditional typeout indicating missing word mark(s) in the last record read on the specified channel.

10. TDW TDR TEMP PERM COMP
    13 16 015 001 000

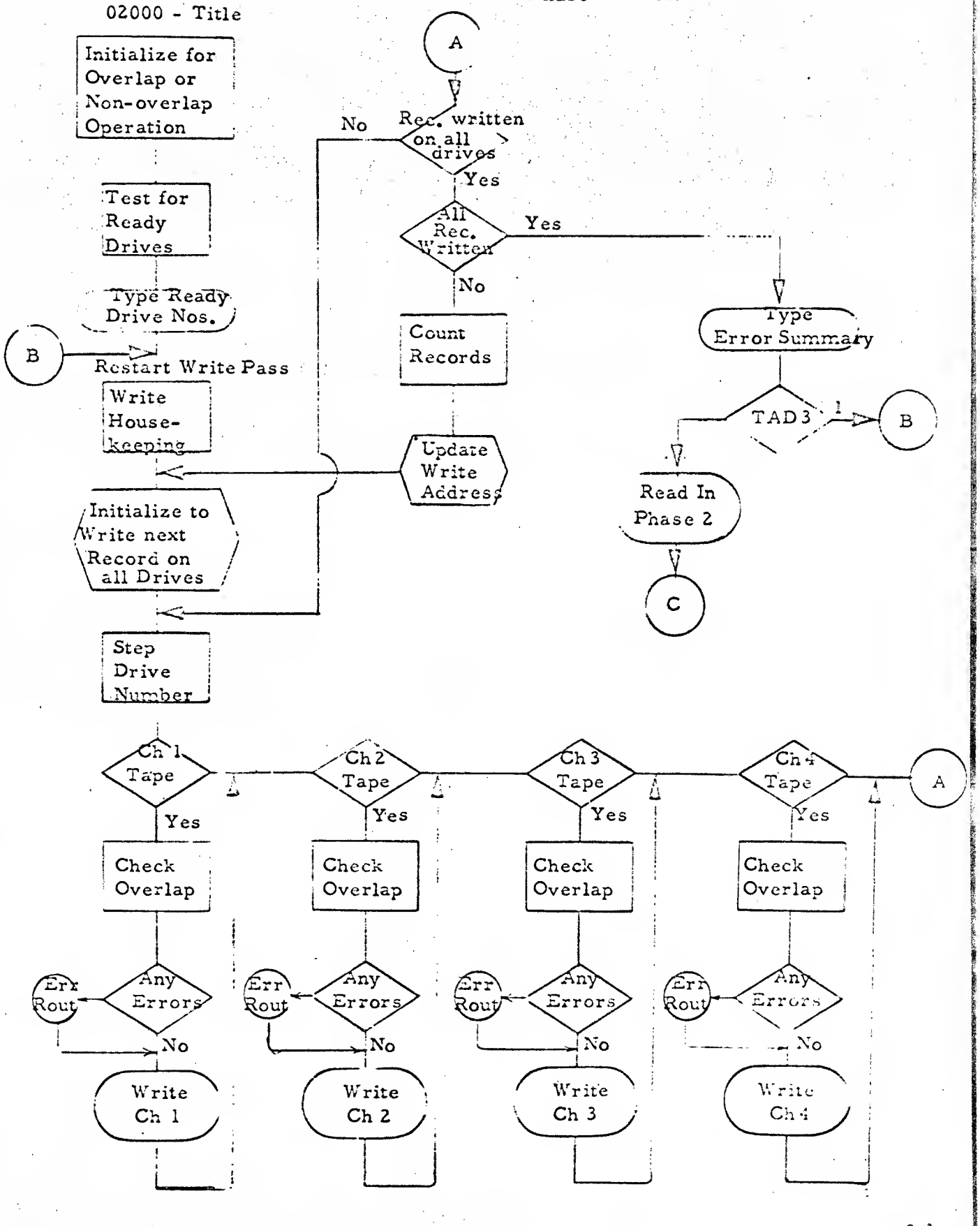
    A header with a summary line for each drive will be typed at the end of the each Read Pass. TDW is the channel and drive the tape was written on and TDR is the channel and drive used to read the tape.

11. INTERCHANGE TAPE

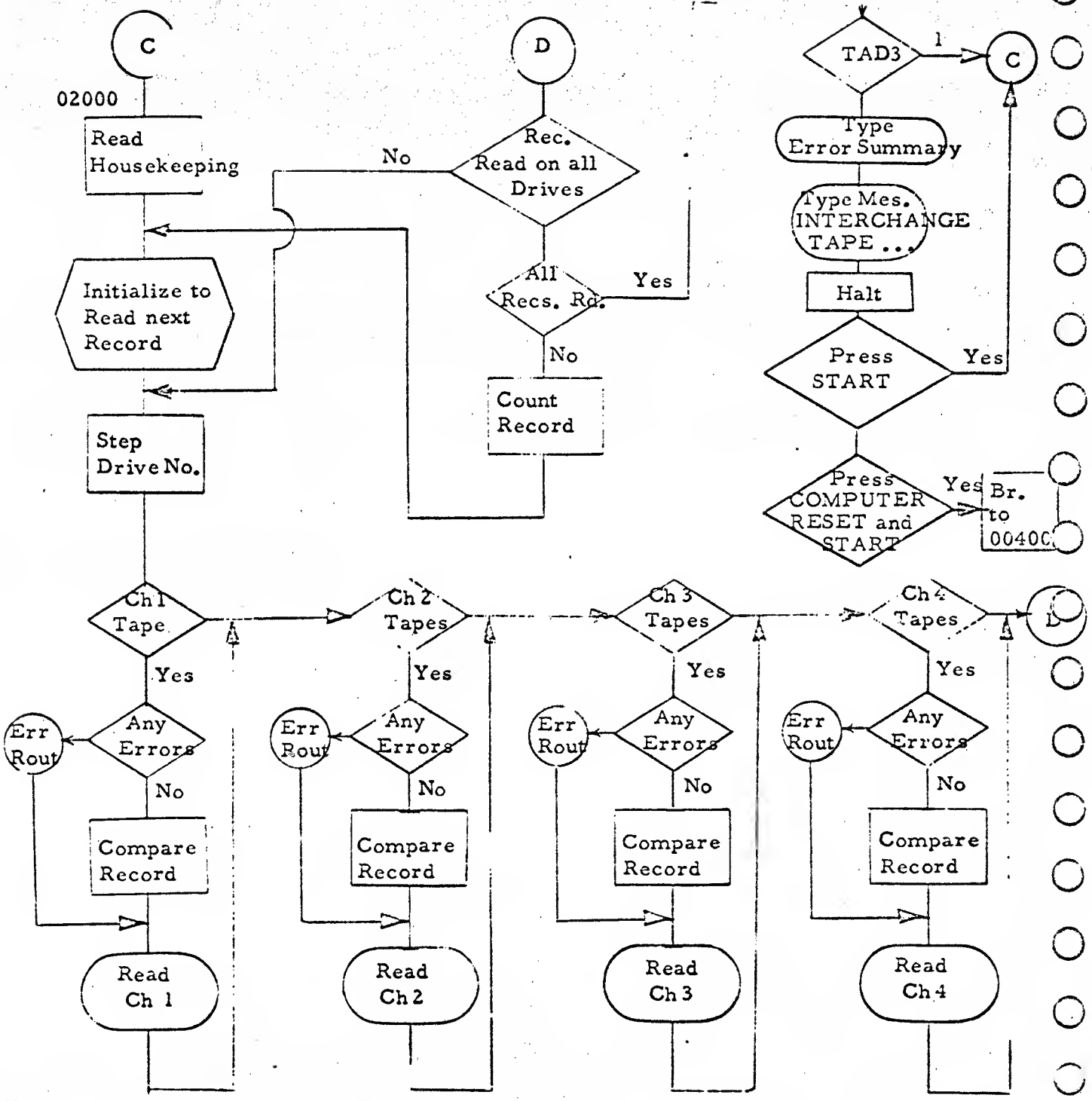
    This notifies the operator to interchange tape.

12. Press Start to be read or Computer Reset and Start to go next test.

    This gives the operator the option to repeat the read pass or to branch and read in the next test at location 00400.


START
02000 - Title
Phase 1 - Write
Initialize for Overlap or Non-overlap Operation
Test for Ready Drives
Type Ready Drive Nos.
B
Restart Write Pass
Write House-keeping
Initialize to Write next Record on all Drives
Step Drive Number
A
Rec. written on all drives
No
Yes
All Rec. Written
Yes
No
Count Records
Update Write Address
Type Error Summary
TAD3 1
B
Read In Phase 2
C
Ch 1 Tape
Ch 2 Tape
Ch 3 Tape
Ch 4 Tape
A
Yes
Check Overlap
Err Rout
Any Errors
No
Write Ch 1
Write Ch 2
Write Ch 3
Write Ch 4

Phase 2 - Read

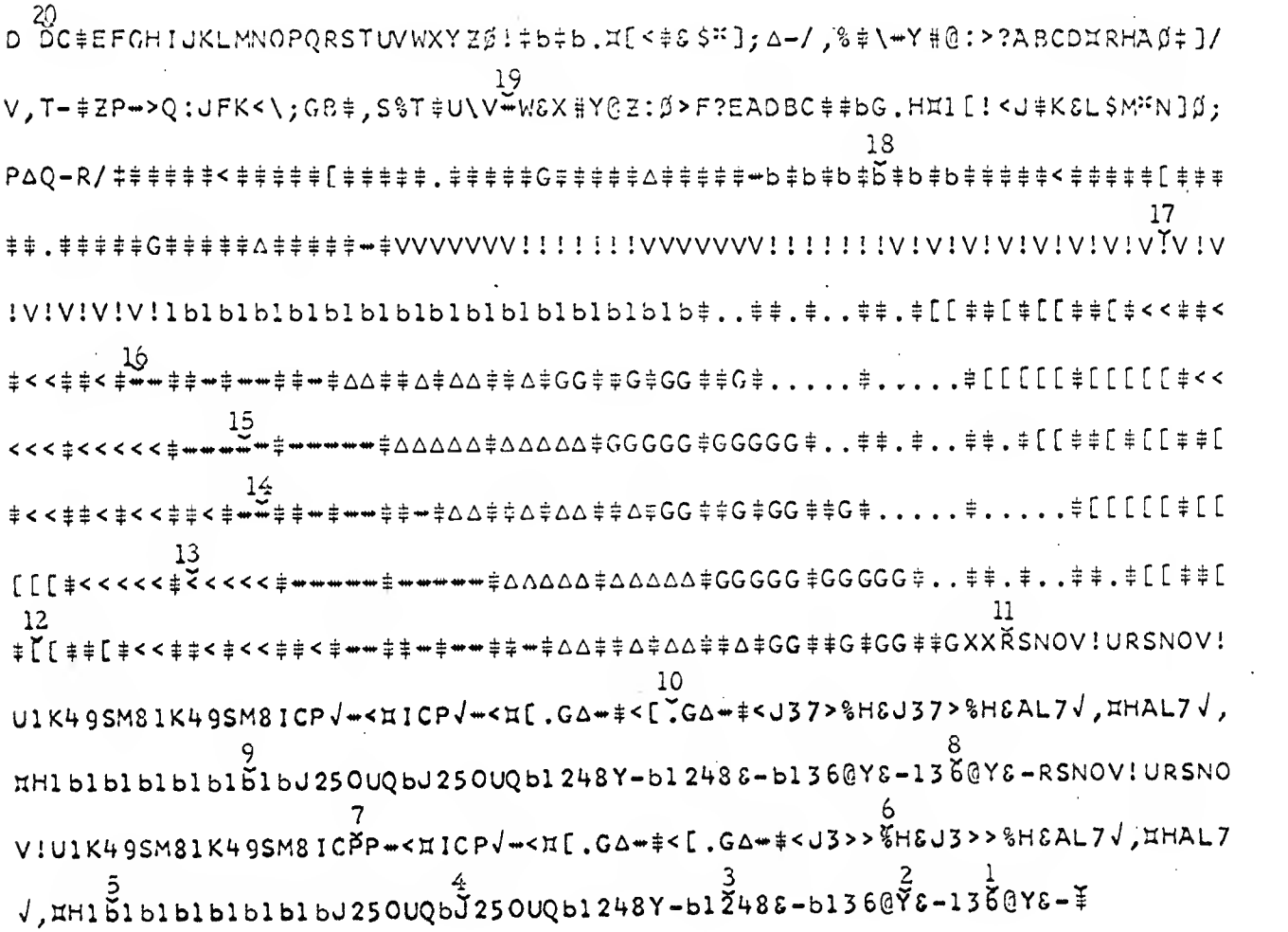

C
02000
Read Housekeeping
Initialize to Read next Record
Step Drive No.
D
Rec. Read on all Drives
No
All Recs. Rd.
Yes
No
Count Record
TAD3
1
C
Type Error Summary
Type Mes. INTERCHANGE TAPE ...
Halt
Press START
Yes
Press COMPUTER RESET and START
Yes
Br. to 00400
Ch 1 Tape
Yes
Any Errors
Err Rout
No
Compare Record
Read Ch 1
Ch 2 Tapes
Yes
Any Errors
Err Rout
No
Compare Record
Read Ch 2
Ch 3 Tapes
Yes
Any Errors
Err Rout
No
Compare Record
Read Ch 3
Ch 4 Tapes
Yes
Any Errors
Err Rout
No
Compare Record
Read Ch 4
D

APPENDIX A

The number above the characters with word marks indicates the record ID. No. The record extends from this word mark to the ;. Each record number includes all lower numbered records. In this manner record 3 includes records 1 and 2 while record 20 includes records 1 through 19.

Example: The first 100 records written are of record ID. No. 1: 6@Y&-

The third 100 records written are of record ID. No. 3:
248&-b136@Y&-136@Y&-



018
T0-1

```
PGLIN    LABEL     DPCOD  OPERAND                                    CT  ADDRS  INSTRUCTION
1002               CTL    2
1003               LOAD
1004     LOADER    EQU    4D0
1005               ORG    1D00                                           D1000
1006     * ************************************************
1007     * STANDARD TADS
1008     * ************************************************
1009     *                          -- NDT 1 --      -- 1 --
1010     TAD0      DC     @ @    TYPE ERROR         ND ERROR TYPE       1  D1D00
1011     *                                          ON EACH DATA CHK
1012     *                                          AND COMP ERROR
1013     TAD1             @ @    ND LDDPS           LDOP                1  D1D01
1014     TAD2             @ @    NO ERROR HALTS     HALT DN ERRDR       1  D1D02
1015     TAD3             @ @    1 WR DR RD PASS    REPEAT PASS         1  D10D3
1016     *SPECIAL TADS  ***
1017     TAD4             @ @    USE DVERLAP        DDNT USE DLAP       1  010D4
1018     TAD5             @ @    DDD PARITY         EVEN PARITY         1  D1DD5
1019     TAD6             @ @    MDVE MODE          LDAD MODE           1  D1006
1020     WMGM      DCW    @MG@                                           1  01D07
1021     ONE01     DCW    @1CD@  ND. DF REPEATS EACH REC LENGTH.         3  01010
1022     *                        MULTIPLY BY 20 FDR TOTAL NO.
1023     *                        DF RECORDS TD BE WRITTEN.
1024     * ************************************************
1025     * PROGRAM ALTER RDUTINE
1026     * ************************************************
1027               ORG    1011                                           D1011
1028     ITR       SBR    ITREXT&5          STORE BAR FOR RETURN         7  01011  G 01085 BG
1029               BAI    *&1                                            7  01018  R 01025 M
1030     ITR1      RCP    ITR2&4T           ENTER LOC OF ALTER           10 01025  M %TO 01060 RT
1031               BEX1   ITR1,MT       BR ANY BUT WLR OR N.T.         7  01035  R 01025 MS
1032               BNT1   ITREXT        BR N.T.                        7  01042  R 01080 BG
1033               BAI    ITR2              RESET I/O INTERLOCK        7  01049  R 01056 M
1034     ITR2      RCPW   0                 ENTER DATA                 10 01056  L %TO 00000 RS
1035               BEX1   ITR2,MS            BR ANY BUT WLR            7  01066  R 01056 MG
1036               BAI    *&1                BRANCH ANY                7  01073  R 01080 M
1037     ITREXT    B      0                  RETURN TO PROGRAM         7  01080  J 00000
1038     * ************************************************
1039     * STANDARD TYPE ROUTINE 1
```

```
PGLIN    LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
1040     * ***************************************************
1041     TYP1      SBR    TYP2&5            STORE MESSAGE ADDRESS   7  01087  G 01113 B
1042               SBR    TYP3&8            DITTO                   7  01094  G 01135 B
1043               BAL    *&1                                       7  01101  R 01108 M
1044     TYP2      SCNRG  0,0               FIND RETURN ADDDRESS   12  01108  D 00000 00000 Q
1045               SAR    TYP4&5            SET RETURN ADDRESS      7  01120  G 01156 A
1046     TYP3      WCP    0                 TYPE MESSAGE           10  01127  M %TO 00000 W
1047               BCBI   TYP3              BRANCH ON BUSY          7  01137  R 01127 2
1048               BAL    *&1               RESET INTERLOCK         7  01144  R 01151 M
1049     TYP4      B      0                 RETURN TO PROGRAM       7  01151  J 00000
1050     * ***************************************************
1051     *              CONSTANTS
1052     * ***************************************************
1053     C1        DCW    CH1-4             ERROR                   5  01162  01796
1054     C2               CH2-4                                     5  01167  01834
1055     C3               CH3-4                                     5  01172  01872
1056     C4               CH4-4                                     5  01177  01910
1057     * *********   READ CONSTANTS   **********************
1058     PM1       DCW    RD1I&16           PERM                    5  01182  02905
1059     PM2              RD2I&16            ERROR                  5  01187  03112
1060     PM3              RD3I&16             COUNT                 5  01192  03319
1061     PM4              RD4I&16              ADDRESSES            5  01197  03526
1062     CP1              RD1I&21           COMP                    5  01202  02910
1063     CP2              RD2I&21            ERROR                  5  01207  03117
1064     CP3       DCW    RD3I&21             COUNT                 5  01212  03324
1065     CP4              RD4I&21              ADDRESSES            5  01217  03531
1066     TMPCNT           000                                       3  01220
1067     MMM       DCW    00                                        2  01222
1068      ZERD     DCW    @     @                                   5  01223
1069     ZZZ              @ @                                       1  01228
1070     YYY              @ @                                       1  01229
1071     * ***************************************************
1072     *     DEFINE CONTROL CARDS
1073     * ***************************************************
1074               ORG    1245                                         01245
1075     *                          IF WORD SEPARATOR THIS
1076     *                          PROGRAM HAS
1077               DC     @205*R@       SEQUENCE NO. AND TOP MEM ADDRESS  5  01249
```

```
PGLIN     LABEL    OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
1078      * ****************************************************
1079      * TEST NUMBER AND SUFFIX
1080                ORG    1250                                                01250
1081       NUMBR    DCW    @T021@                                           4  01250
1082      SUFFIX    DC     @C@,G                                            1  01254
1083      * ****************************************************
1084      * STANDARD SYSTEM CONTROL CARD
1085      * ****************************************************
1086                ORG    1256     CHARACTER & PURPOSE          COL          01256
1087      SYS1      DC     @ @  ALPHA O,I,X - 1410,1410ACC,7010 13           1  01256
1088              &1  DC     @ @  0,1,3,5,7,9-10,20,40,60,80,100K 14           1  01257
1089              &2  DC     @ @                SPARE             15           1  01258
1090              &3  DC     @ @  1,2-CHNL1 100,132 CHAR PRINTER  16           1  01259
1091              &4  DC     @ @  1,2-CHNL2 100,132 CHAR PRINTER  17           1  01260
1092              &6  DC     @  @               SPARES          18-19          2  01262
1093              &7  DC     @ @  1 - OVERLAP                     20           1  01263
1094              &8  DC     @ @  1 - PRIORITY ALERT              21           1  01264
1095             &11  DC     @   @              SPARES          22-24          3  01267
1096             &12  DC     @ @  1 - CHANNEL ONE PRESENT         25           1  01268
1097             &13  DC     @ @  1 - CHANNEL TWO PRESENT         26           1  01269
1098             &14  DC     @ @  1 - CHANNEL THREE PRESENT       27           1  01270
1099             &15  DC     @ @  1 - CHANNEL FOUR PRESENT        28           1  01271
1100             &17  DC     @  @               SPARES          29-30          2  01273
1101             &18  DC     @ @  1 - 1401 COMPATIBILITY          31           1  01274
1102             &19  DC     @ @  1 - TIMER INTERRUPT             32           1  01275
1103             &20  DC     @ @  1 - REAL TIME CLOCK             33           1  01276
1104             &21  DC     @ @  1 - RELOCATE AND PROTECT        34           1  01277
1105             &22  DC     @ @  1 - FLOATING POINT ARITHMETIC   35           1  01278
1106             &31  DC     @        @         SPARES          36-44          9  01287
1107             &32  DC     @*@                               45              1  01288
1108      * ****************************************************
1109      *       CHANNEL ALTER ROUTINE
1110      * ****************************************************
1111                ORG    1290                                                01290
1112      CHSTT     SBR    CHSTTR&5                                         7  01290  G 01675 B
1113                MLNA   STARAD,SCAN&10                                   12  01297  D 01681 01342 /
1114                SW     X11-4                                            6  01309  , 00075
1115                S      X11                                              6  01315  S 00079
```

```
PGLIN     LABEL     OPCOD     OPERAND                    CT   ADDRS   INSTRUCTION
1116                A         ONES,X11                   11   01321   A 01709 00079
1117      SCAN      SCNLB     9999,0                     12   01332   D 09999 00000 -
1118                SBR       AODHLD                      7   01344   G 01691 B
1119                A         ONES,ADDHLD                11   01351   A 01709 01691
1120                C         ADDHLD,STOPAD              11   01362   C 01691 01686
1121                BE        CHSTTR                      7   01373   J 01670 S
1122                MLNA      ADDHLD,MLC&5               12   01380   D 01691 01397 /
1123      MLC       MLCS      0,BCH&11                   12   01392   D 00000 01415 3
1124      BCH       BCE       CHINS,K1,7                 12   01404   B 01463 01703 7
1125                BCE                                   1   01416   B
1126                BCE                                   1   01417   B
1127                BCE       STINS                       6   0141B   B 01540
1128                BCE                                   1   01424   B
1129                BCE                                   1   01425   B
1130                BCE                                   1   01426   B
1131                BCE       OLINS                       6   01427   B 01571
1132      UPDAT     S         ONES,AODHLO                11   01433   S 01709 01691
1133                MLNA      ADDHLD,SCAN&10             12   01444   D 01691 01342 /
1134                B         SCAN                        7   01456   J 01332
1135      CHINS     MLNA      AODHLD,MLCX&10             12   01463   D 01691 01485 /
I136      MLCX      MLCS      CHCODE,O&X11               12   01475   D 01692 00.MO 3
1137                A         THREES,AODHLD              11   014B7   A 01711 01691
1138                MLNA      AODHLD,CTD&10              12   0149B   D 01691 01520 /
1139      CTD       MLCS      TONO,0                     12   01510   D 0170B 00000 3
1140                S         THREES,ADDHLD              11   01522   S 01711 01691
1141      UNIT      B         UPDAT                       7   01533   J 01433
1142      STINS     MLNA      ADDHLD,MLCH&10             12   01540   D 01691 01562 /
1143      MLCH      MLCS      CHSTAT,0                   12   01552   D 01693 00000 3
1144                B         UPDAT                       7   01564   J 01433
I145      OLINS     A         SIX,ADOHLD                 11   01571   A 01695 01691
1146                MLNA      AODHLD,MLCO&5              12   01582   D 01691 01599 /
1147      MLCO      MLCS      0,BCS&11                   12   01594   D 00000 01617 3
1148      BCS       BCE       SETOL,K2,1                 12   01606   B 01628 01707 1
1149                BCE                                   1   01618   B
1150                BCE                                   1   01619   B
1151                BCE                                   1   01620   B
1152                B         REDUCE                      7   01621   J 01652
```

```
PGLIN     LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
1153      SETOL      MLNA   ADDHLD,MLCL&10                                   12  01628  D 01691 01650 /
1154      MLCL       MLCS   BOLOM,0                                          12  01640  D 01694 00000 3
1155      REDUCE     S      SIX,ADDHLD                                       11  01652  S 01695 01691
1156                 B      UPDAT                                             7  01663  J 01433
1157      CHSTTR     B      0                                                 7  01670  J 00000
1158      STARAD     DCW    PERR                                              5  01681  07352
1159      STOPAD     DCW    ERROUT                                            5  01686  06907
1160      ADDHLD     DCW    00000                                             5  01691
1161      CHCODE             0                                                 1  01692
1162      CHSTAT             0                                                 1  01693
1163      BOLOM              1                                                 1  01694
1164      SIX                6                                                 1  01695
1165      K1         DCW    @J13XRULM@                                        8  01703
1166      K2                 @4321@                                            4  01707
1167      TONO               @ @                                               1  01708
1168      ONES               1                                                 1  01709
1169      TWOS       DCW    @2@                                               1  01710
1170      THREES             3                                                 1  01711
1171      RESTW      DCW    @J@                                               1  01712
1172                 DC     START                                             5  01717  02000
1173                 DC     @ @                                               1  01718
1174                 H                              END BRANCH INST.          1  01719  .
1175                 DCW    @‡@                                               1  01720
1176                 ORG    1289                                                 01289
1177      **********
1178      *$STANDARD CHANNEL 1 CONTROL CARD.
1179                 ORG    1289     CHARACTER & PURPOSE              COL        01289
1180      CHN1       DC     @ @  1 - PAPER TAPE READER                 13    1  01289
1181           &1    DC     @ @  1 - CONSOLE PRINTER                   14    1  01290
1182           &2    DC     @ @  1 - TAPES 729/7330                    15    1  01291
1183          &11    DC     @      @       SPARES                   16-24   9  01300
1184          &12    DC     @ @  R,S,C - 1402,1442,7223 READER         25    1  01301
1185          &13    DC     @ @  B - READER COLUMN BINARY FEAT.        26    1  01302
1186          &14    DC     @ @  P - 1402 PUNCH                        27    1  01303
1187          &15    DC     @ @  B - PUNCH COLUMN BINARY FEAT.         28    1  01304
1188          &16    DC     @ @  P - 1403 PRINTER                      29    1  01305
1189          &17    DC     @ @  A,N - ALPHA,NUMERIC PRINT CHAIN       30    1  01306
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PGLIN    LABEL      OPCOD  OPERAND                                    CT  ADDRS  INSTRUCTION
1190             &18 DC     @ @  1,2 - 100,132 CHAR PRINT BUFFER 31     1  01307
1191             &19 DC     @ @  F - 1301 FILE                   32     1  01308
1192             &20 DC     @ @  1 THRU 0 - 1 THRU 10 FILE MODULE33     1  01309
1193             &21 DC     @ @  1 THRU 0 - 1 THRU 10 ACCESSES   34     1  01310
1194             &22 DC     @ @  R - 1311 IMPAC                  35     1  01311
1195             &23 DC     @ @  1 THRU 5 - 1 THRU 5 IMPAC MODULE36     1  01312
1196             &24 DC     @ @  1 - SEEK OVERLAP FEATURE        37     1  01313
1197             &25 DC     @ @  1 - SCAN FEATURE                38     1  01314
1198             &26 DC     @ @  1 - TRACK RECORD FEATURE        39     1  01315
1199             &27 DC     @ @  F - 1405 FILE                   40     1  01316
1200             &28 DC     @ @  1,2,3 - 1,2,3 ARMS IN MODULE 0  41     1  01317
1201             &29 DC     @ @  1,2,3 - 1,2,3 ARMS IN MODULE 1  42     1  01318
1202             &30 DC     @ @  1,2,3 - 1,2,3 ARMS IN MODULE 2  43     1  01319
1203             &31 DC     @ @  1,2,3 - 1,2,3 ARMS IN MODULE 3  44     1  01320
1204             &32 DC     @ @  1,2,3 - 1,2,3 ARMS IN MODULE 4  45     1  01321
1205             &33 DC     @ @  1 - 7750 ON THIS CHANNEL        46     1  01322
1206             &34 DC     @ @  1 - 7740 ON THIS CHANNEL        47     1  01323
1207             &35 DC     @ @  1 - 1440/1460 ON THIS CHANNEL   48     1  01324
1208             &36 DC     @ @  1 - CHAN HAS CHANNEL EXTENDER   49     1  01325
1209             &37 DC     @ @  L - LOW SPEED HYPER TAPE        50     1  01326
1210             &38 DC     @ @  1,2,3-1050-1,2,OR BOTH ADAPTERS 51     1  01327
1211             &55 DC     @              @  SPARES          52-68    17  01344
1212             &56 DC     @#@                                69     1  01345
1213    **********
1214    *$STANDARD CHANNEL 2 CONTROL CARD.
1215               ORG     1346     CHARACTER & PURPOSE         COL        01346
1216    CHN2       DC      @ @  1 - PAPER TAPE READER           13     1  01346
1217             &1 DC     @ @  1 - CONSOLE PRINTER             14     1  01347
1218             &2 DC     @ @  1 - TAPES 729/7330              15     1  01348
1219            &11 DC     @        @        SPARES           16-24     9  01357
1220            &12 DC     @ @  R,S,C - 1402,1442,7223 READER   25     1  01358
1221            &13 DC     @ @  B - READER COLUMN BINARY FEAT.  26     1  01359
1222            &14 DC     @ @  P - 1402 PUNCH                  27     1  01360
1223            &15 DC     @ @  B - PUNCH COLUMN BINARY FEAT.   28     1  01361
1224            &16 DC     @ @  P - 1403 PRINTER                29     1  01362
1225            &17 DC     @ @  A,N - ALPHA,NUMERIC PRINT CHAIN 30     1  01363
1226            &18 DC     @ @  1,2 - 100,132 CHAR PRINT BUFFER 31     1  01364
1227            &19 DC     @ @  F - 1301 FILE                   32     1  01365
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PGLIN    LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
1228               &20 DC     @ @  1 THRU 0 - 1 THRU 10 FILE MODULE33        1  01366
1229               &21 DC     @ @  1 THRU 0 - 1 THRU 10 ACCESSES  34         1  01367
1230               &22 DC     @ @  R - 1311 IMPAC                 35         1  01368
1231               &23 DC     @ @  1 THRU 5 - 1 THRU 5 IMPAC MODULE36        1  01369
1232               &24 DC     @ @  1 - SEEK OVERLAP FEATURE       37         1  01370
1233               &25 DC     @ @  1 - SCAN FEATURE               38         1  01371
1234               &26 DC     @ @  1 - TRACK RECORD FEATURE       39         1  01372
1235               &27 DC     @ @  F - 1405 FILE                  40         1  01373
1236               &28 DC     @ @  1,2,3 - 1,2,3 ARMS IN MODULE 0 41         1  01374
1237               &29 DC     @ @  1,2,3 - 1,2,3 ARMS IN MODULE 1 42         1  01375
1238               &30 DC     @ @  1,2,3 - 1,2,3 ARMS IN MODULE 2 43         1  01376
1239               &31 DC     @ @  1,2,3 - 1,2,3 ARMS IN MODULE 3 44         1  01377
1240               &32 DC     @ @  1,2,3 - 1,2,3 ARMS IN MODULE 4 45         1  01378
1241               &33 DC     @ @  1 - 7750 ON THIS CHANNEL       46         1  01379
1242               &34 DC     @ @  1 - 7740 ON THIS CHANNEL       47         1  01380
1243               &35 OC     @ @  1 - 1440/1460 ON THIS CHANNEL  48         1  01381
1244               &36 DC     @ @  1 - CHAN HAS CHANNEL EXTENDER  49         1  01382
1245               &37 DC     @ @  L - LOW SPEED HYPER TAPE       50         1  01383
1246               &38 OC     @ @  1,2,3-1050-1,2,OR BOTH ADAPTERS 51        1  01384
1247               &55 DC     @          @  SPARES          52-68           17  01401
1248               &56 DC     @*@                           69               1  01402
1249     **********
1250     *$STANDARD CHANNEL 3 CONTROL CARD.
1251                ORG     1403     CHARACTER & PURPOSE          COL          01403
1252     CHN3       OC      @ @  1 - PAPER TAPE READER            13         1  01403
1253               &1 DC     @ @  1 - CONSOLE PRINTER             14         1  01404
1254               &2 OC     @ @  1 - TAPES 729/7330              15         1  01405
1255              &11 OC     @          @       SPARES          16-24          9  01414
1256              &12 DC     @ @  R,S,C - 1402,1442,7223 READER   25         1  01415
1257              &13 OC     @ @  B - READER COLUMN BINARY FEAT.  26         1  01416
1258              &14 OC     @ @  P - 1402 PUNCH                  27         1  01417
1259              &15 DC     @ @  B - PUNCH COLUMN BINARY FEAT.   28         1  01418
1260              &16 OC     @ @  P - 1403 PRINTER                29         1  01419
1261              &17 OC     @ @  A,N - ALPHA,NUMERIC PRINT CHAIN 30         1  01420
1262              &18 DC     @ @  1,2 - 100,132 CHAR PRINT BUFFER 31         1  01421
1263              &19 DC     @ @  F - 1301 FILE                   32         1  01422
1264              &20 OC     @ @  1 THRU 0 - 1 THRU 10 FILE MODULE33         1  01423
1265              &21 DC     @ @  1 THRU 0 - 1 THRU 10 ACCESSES  34          1  01424
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PGLIN     LABEL     OPCOD  OPERAND                                    CT  ADDRS  INSTRUCTION
1266              &22 DC     @ @  R - 1311 IMPAC                 35    1  01425
1267              &23 DC     @ @  1 THRU 5 - 1 THRU 5 IMPAC MODULE36   1  01426
1268              &24 DC     @ @  1 - SEEK OVERLAP FEATURE       37    1  01427
1269              &25 DC     @ @  1 - SCAN FEATURE               38    1  01428
1270              &26 DC     @ @  1 - TRACK RECORD FEATURE       39    1  01429
1271              &27 DC     @ @  F - 1405 FILE                  40    1  01430
1272              &28 DC     @ @  1,2,3 - 1,2,3 ARMS IN MODULE 0 41    1  01431
1273              &29 DC     @ @  1,2,3 - 1,2,3 ARMS IN MODULE 1 42    1  01432
1274              &30 DC     @ @  1,2,3 - 1,2,3 ARMS IN MODULE 2 43    1  01433
1275              &31 DC     @ @  1,2,3 - 1,2,3 ARMS IN MODULE 3 44    1  01434
1276              &32 DC     @ @  1,2,3 - 1,2,3 ARMS IN MODULE 4 45    1  01435
1277              &33 DC     @ @  1 - 7750 ON THIS CHANNEL       46    1  01436
1278              &34 DC     @ @  1 - 7740 ON THIS CHANNEL       47    1  01437
1279              &35 DC     @ @  1 - 1440/1460 ON THIS CHANNEL  48    1  01438
1280              &36 DC     @ @  1 - CHAN HAS CHANNEL EXTENDER  49    1  01439
1281              &37 DC     @ @  L - LOW SPEED HYPER TAPE       50    1  01440
1282              &38 DC     @ @  1,2,3-1050-1,2,OR BOTH ADAPTERS 51   1  01441
1283              &55 DC     @          @  SPARES          52-68   17  01458
1284              &56 DC     @*@                           69    1  01459
1285     **********
1286     *$STANDARD CHANNEL 4 CONTROL CARD.
1287               ORG     1460     CHARACTER & PURPOSE          COL      01460
1288     CHN4       DC     @ @  1 - PAPER TAPE READER          13    1  01460
1289              &1 DC     @ @  1 - CONSOLE PRINTER            14    1  01461
1290              &2 DC     @ @  1 - TAPES 729/7330             15    1  01462
1291             &11 DC     @          @        SPARES       16-24    9  01471
1292             &12 DC     @ @  R,S,C - 1402,1442,7223 READER  25    1  01472
1293             &13 DC     @ @  B - READER COLUMN BINARY FEAT. 26    1  01473
1294             &14 DC     @ @  P - 1402 PUNCH                 27    1  01474
1295             &15 DC     @ @  B - PUNCH COLUMN BINARY FEAT.  28    1  01475
1296             &16 DC     @ @  P - 1403 PRINTER               29    1  01476
1297             &17 DC     @ @  A,N - ALPHA,NUMERIC PRINT CHAIN 30   1  01477
1298             &18 DC     @ @  1,2 - 100,132 CHAR PRINT BUFFER 31   1  01478
1299             &19 DC     @ @  F - 1301 FILE                  32    1  01479
1300             &20 DC     @ @  1 THRU 0 - 1 THRU 10 FILE MODULE33   1  01480
1301             &21 DC     @ @  1 THRU 0 - 1 THRU 10 ACCESSES  34    1  01481
1302             &22 DC     @ @  R - 1311 IMPAC                 35    1  01482
1303             &23 DC     @ @  1 THRU 5 - 1 THRU 5 IMPAC MODULE36   1  01483
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PGLIN     LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
1304                 &24 DC     @ @  1 - SEEK OVERLAP FEATURE          37    1  D1484
1305                 &25 DC     @ @  1 - SCAN FEATURE                  38    1  D1485
1306                 &26 DC     @ @  1 - TRACK RECORD FEATURE          39    1  01486
1307                 &27 DC     @ @  F - 1405 FILE                     40    1  D1487
1308                 &28 DC     @ @  1,2,3 - 1,2,3 ARMS IN MODULE 0    41    1  D1488
1309                 &29 DC     @ @  1,2,3 - 1,2,3 ARMS IN MODULE 1    42    1  01489
1310                 &30 DC     @ @  1,2,3 - 1,2,3 ARMS IN MODULE 2    43    1  01490
1311                 &31 DC     @ @  1,2,3 - 1,2,3 ARMS IN MODULE 3    44    1  D1491
1312                 &32 DC     @ @  1,2,3 - 1,2,3 ARMS IN MODULE 4    45    1  01492
1313                 &33 DC     @ @  1 - 7750 ON THIS CHANNEL          46    1  D1493
1314                 &34 DC     @ @  1 - 774D ON THIS CHANNEL          47    1  01494
1315                 &35 DC     @ @  1 - 144D/1460 ON THIS CHANNEL     48    1  01495
1316                 &36 DC     @ @  1 - CHAN HAS CHANNEL EXTENDER     49    1  D1496
1317                 &37 DC     @ @  L - LOW SPEED HYPER TAPE          5D    1  01497
1318                 &38 DC     @ @  1,2,3-1D50-1,2,OR BOTH ADAPTERS   51    1  D1498
1319                 &55 DC     @                @  SPARES          52-68   17  D1515
1320                 &56 DC     @*@                                   69    1  D1516
1321                     ORG    18D0                                             01800
1322      CH1            DA     1X37,G              READY TABLE AREA             01800
1323      CH2            DA     1X37,G              READY TABLE AREA             D1838
1324      CH3            DA     1X37,G              READY TABLE AREA             D1876
1325      CH4            DA     1X37,G              READY TABLE AREA             D1914
1326                     DCW    @M@                                   G      1  01952
1327      * *********   READ CONSTANTS   **********************
1328      RESTR          DCW    &REWDND                                       5  01957  05390
1329      NXTST          DCW    0D400                                         5  D1962
1330      TM1            DCW    RD11&11             TEMP                      5  01967  02900
1331      TM2                   RD21&11              ERROR                    5  D1972  03107
1332      TM3                   RD31&11               COUNT                   5  01977  03314
1333      TM4                   RD41&11                ADDRESSES              5  D1982  03521
1334      * ****************************************************
1335      *              START OF TEST
1336      * ****************************************************
1337                     ORG    200D                                             020DD
1338      START          NOP                                                   1  D20D0  N
1339                     WCP    NUMBR               TYPE                     10  D2001  M %TO 01250 W
1340                     BAI    *-16                 TITLE                    7  D2011  R 02001 M
1341                     CW     START&1                ONLY ONCE              6  D2018  ¤ 02001
                                                                                      G
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PGLIN     LABEL     OPCOD  OPERAND                                  CT  ADORS  INSTRUCTION
1342                CS     99                    CLEAR INOEX REGS    6  02024  / 00099
1343                MRCWM  RESTW,1   MOVE RESTART BR TO LOC 1       12  02030  D 01712 00001 GM
1344                NOP                                              1  02042  N
1345      MRSW      B      MRCW                                      7  02043  J 08396
1346                S      ZRE                                       6  02050  S 09958
1347                BNQ    ITR                                       7  02056  J 01011 Q
1348      * ************************************************
1349      *              ROUTINE TO INITALIZE RDY TBL ROUTINE
1350      * ************************************************
1351                CW     SW61&1,SW62&1                            11  02063  ¤ 02448 02493
1352                CW     SW63&1,SW64&1                            11  02074  ¤ 02545 02597
1353                CS     CH4&36              CLEAR READY TABLE     6  02085  / 01950
1354                CS                                               1  02091  /
1355                SW     CH1,CH2             RESTORE              11  02092  , 01800 01838
1356                SW     CH3,CH4              WOROMARKS           11  02103  , 01876 01914
1357                SW     X13-4                                     6  02114  , 00085
1358      *  ************SET UP OLAP OR NO-OLAP   **************
1359                BCE    *&8,TAD4,1                               12  02120  B 02139 01004 1
1360                B      *&8                 USE OLAP TAD4 NOT 1   7  02132  J 02146
1361                B      NNOLAP                                    7  02139  J 02276
1362                BCE    *&8,SYS1&7,1                             12  02146  B 02165 01263 1
1363                B      NNOLAP                                    7  02158  J 02276
1364                SW     OLAP1,OLAP2         TEST OLAP SW         11  02165  , 04468 05069
1365                SW     OLAP3,OLAP4                              11  02176  , 05670 06271
1366                SW     NOWT1&1,NOWT2&1                          11  02187  , 04163 04764
1367                SW     NOWT3&1,NOWT4&1                          11  02198  , 05365 05966
1368                MLCS   @@@,WRITE1&1        MOVE                 12  02209  D 08851 04458 3
1369                MLCS   @*@,WRITE2&1          CODES              12  02221  D 08852 05059 3
1370                MLCS   @$@,WRITE3&1            WRITE            12  02233  D 08853 05660 3
1371                MLCS   @#@,WRITE4&1              READ           12  02245  D 08854 06261 3
1372                MLCA   @  @,OPMSG&25                            12  02257  D 08856 03863 T
1373                B      SW61                                      7  02269  J 02447
1374      NNOLAP    MLCS   @%@,WRITE1&1                             12  02276  O 08857 04458 3
1375                MLCS   @¤@,WRITE2&1                             12  02288  D 08858 05059 3
1376                MLCS   @Q@,WRITE3&1                             12  02300  O 08859 05660 3
1377                MLCS   @.@,WRITE4&1                             12  02312  D 08860 06261 3
1378                CW     OLAP1,OLAP2                              11  02324  ¤ 04468 05069
1379                MLCA   @UN@,OPMSG&25                            12  02335  O 08862 03863 T
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PGLIN  LABEL   OPCOD  OPERAND                    CT  ADDRS  INSTRUCTION
1380   NOPLAV  CW     OLAP3,OLAP4                11  02347  ¤ 05670 06271
1381           CW     SCLOP1,SCLOP2  NO-OP BOL INST  11  02358  ¤ 04436 05037
1382           CW     SCLOP3,SCLOP4  NO-OP BOL INST  11  02369  ¤ 05638 06239
1383           BCE    *&8,SYS1&7,1   BR IF OLAP AVAIL  12  02380  B 02399 01263 1
1384           B      SW61                        7  02392  J 02447
1385           SW     OLAP1,OLAP2    TO TEST BOL WHEN  11  02399  , 04468 05069
1386           SW     OLAP3,OLAP4     NOT WRITING OLAP  11  02410  , 05670 06271
1387           NOPWM                              1  02421  N
1388   IBA     B      RDYMSG                      7  02422  J 02780
1389           B      SW61           BR FIRST CH  7  02429  J 02447
1390   CHALT   A      &1,X15         TO STEP CH  11  02436  A 08863 00099
1391   SW61    NOPWM                 SWITCH       1  02447  N
1392           B      SW62           BR TO CH2    7  02448  J 02492
1393           SW     SW61&1         SET SWITCH   6  02455  , 02448
1394           MLCB   &CH1,X13                    12  02461  D 08868 00089 L
1395           BCE    TEST,SYS1&12,1 BR IF CH1 AVAIL  12  02473  B 02648 01268 1
1396           B      CHALT                       7  02485  J 02436
1397   SW62    NOPWM                 SWITCH       1  02492  N
1398           B      SW63           BR TO CH3    7  02493  J 02544
1399           SW     SW62&1         SET SWITCH   6  02500  , 02493
1400           BCE    CH1A,SYS1&13,1 BR IF CH2    12  02506  B 02525 01269 1
1401           B      CHALT                       7  02518  J 02436
1402   CH1A    MLCB   &CH2,X13       MOV CH2 RDYTBL ADDR  12  02525  D 08873 00089 L
1403           B      TEST           TEST DRIVES  7  02537  J 02648
1404   SW63    NOPWM                 SWITCH       1  02544  N
1405           B      SW64           BR TO CH4    7  02545  J 02596
1406           SW     SW63&1         SET SWITCH   6  02552  , 02545
1407           BCE    CH2A,SYS1&14,1 BR IF CH3    12  02558  B 02577 01270 1
1408           B      CHALT          BR TEST DRIVES  7  02570  J 02436
1409   CH2A    MLCB   &CH3,X13       MOV CH3 RDYTBL ADDR  12  02577  D 08878 00089 L
1410           B      TEST           TEST DRIVES  7  02589  J 02648
1411   SW64    NOPWM                 SWITCH       1  02596  N
1412           B      RDYMSG         TYPE RDY DRIVES  7  02597  J 02780
1413           SW     SW64&1         SET SWITCH   6  02604  , 02597
1414           BCE    CH3A,SYS1&15,1 BR IF CH4    12  02610  B 02629 01271 1
1415           B      RDYMSG         TYPE RDY DRIVES  7  02622  J 02780
1416   CH3A    MLCB   &CH4,X13       MOV CH4 RDYTBL ADDR  12  02629  D 08883 00089 L
1417           B      TEST           TEST DRIVES  7  02641  J 02648
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PGLIN  LABEL    OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
1418   TEST     MLCS   CHOP&X15,REWIND&1  MOVE          12  02648  D 091F0 02732 3
1419            MLCS   TANB&X15,BUSY        CHANNEL     12  02660  D 091F8 02736 3
1420            MLCS   TANB&X15,NOTRDY       OP CODES   12  02672  D 091F8 02743 3
1421            MLCS   @0@,REWIND&3        ZERO REWIND   12  02684  D 08884 02734 3
1422   STEPDR   SW     REWIND&3            ADD ONE        6  02696  , 02734
1423            A      &1,REWIND&3           TO DRIVE    11  02702  A 08863 02734
1424            CW     REWIND&3              NUMBER       6  02713  ¤ 02734
1425            BCE    CHALT,REWIND&3,0    BR IF DR NO IS ZERO  12  02719  B 02436 02734 0
1426   REWIND   RWD    11                  REWIND         5  02731  U %U1 R
1427   BUSY     BEX1   REWIND,T            BR ANY BUT NOT READY  7  02736  R 02731 LTG
1428   NOTRDY   BA1    STEPDR              BR NOT READY   7  02743  R 02696 M
1429            A      &4,X13                             11  02750  A 08885 00089
1430            MLCS   REWIND&3,0&X13      MOVE DR NO TO RDYTBL  12  02761  D 02734 00M*0 3Q
1431            B      STEPDR              TEST NEXT DR   7  02773  J 02696
1432   RDYMSG   MLCA   CH1&36,CH1T                        12  02780  D 01836 02914 T
1433            MLCA   CH2&36,CH2T                        12  02792  D 01874 02981 T
1434            MLCA   CH3&36,CH3T                        12  02804  D 01912 03048 T
1435            MLCA   CH4&36,CH4T                        12  02816  D 01950 03115 T
1436            B      TYP1                               7  02828  J 01087
1437            DCW    @ READY DRIVES@,G                 13  02847
1438            BCE    *&8,SYS1&12,1                      12  02849  B 02868 01268 1
1439            B      CH2TX                              7  02861  J 02916
1440            B      TYP1                               7  02868  J 01087
1441   CH1T     DCW    @CH1                        @,G   40  02914
1442   CH2TX    BCE    *&8,SYS1&13,1                      12  02916  B 02935 01269 1
1443            B      CH3TX               BYPASS TYPE    7  02928  J 02983
1444            B      TYP1                               7  02935  J 01087
1445   CH2T     DCW    @CH2                        @,G   40  02981
1446   CH3TX    BCE    *&8,SYS1&14,1                      12  02983  B 03002 01270 1
1447            B      CH4TX               BYPASS TYPE    7  02995  J 03050
1448            B      TYP1                               7  03002  J 01087
1449   CH3T     DCW    @CH3                        @,G   40  03048
1450   CH4TX    BCE    *&8,SYS1&15,1                      12  03050  B 03069 01271 1
1451            B      HSKPW               BYPASS TYPE    7  03062  J 03117
1452            B      TYP1                               7  03069  J 01087
1453   CH4T     DCW    @CH4                        @,G   40  03115
1454   * ************************************************
1455   *              WRITE INITALIZATION
```

```
PGLIN     LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
1456      * **********************************************
1457      * **  INITALIZE OOD-EVEN PARITY, MOVE-LOAD MODE  *****
1458      HSKPW     BNQ    ITR          PRESS INQUIRY REQUEST TO     7  03117  J 01011 Q
1459      *                             ENTER SPECIAL TADS 4-6
1460                BCE    EPARTY,TAD5,1      BR IF ODD PARITY      12  03124  B 03203 01005 1
1461                MLCS   @B@,WRITE1&2       OOD PARITY CODES      12  03136  D 08886 04459 3
1462                MLCS   @B@,WRITE2&2       OOD PARITY CODES      12  03148  D 08886 05060 3
1463                MLCS   @B@,WRITE3&2       ODD PARITY CODES      12  03160  D 08886 05661 3
1464                MLCS   @B@,WRITE4&2       OOD PARITY CODES      12  03172  D 08886 06262 3
1465                MLCA   @ COD@,OPMSG&3                           12  03184  D 08890 03841 T
1466                B      MODE                                      7  03196  J 03263
1467      EPARTY    MLCS   @U@,WRITE1&2       EVEN PARITY CODES     12  03203  D 08891 04459 3
1468                MLCS   @U@,WRITE2&2       EVEN PARITY CODES     12  03215  D 08891 05060 3
1469                MLCS   @U@,WRITE3&2       EVEN PARITY CODES     12  03227  D 08891 05661 3
1470                MLCS   @U@,WRITE4&2       EVEN PARITY CODES     12  03239  D 08891 06262 3
1471                MLCA   @EVEN@,OPMSG&3                           12  03251  D 08895 03841 T
1472      MODE      BCE    LMODE,TAD6,1       BR IF LOAD MODE       12  03263  B 03342 01006 1
1473                MLCS   @M@,WRITE1         MOVE MODE CODES       12  03275  D 08896 04457 3
1474                MLCS   @M@,WRITE2         MOVE MODE CODES       12  03287  D 08896 05058 3
1475                MLCS   @M@,WRITE3         MOVE MODE CODES       12  03299  D 08896 05659 3
1476                MLCS   @M@,WRITE4         MOVE MODE CODES       12  03311  D 08896 06260 3
1477                MLCA   @MOVE@,OPMSG&16                          12  03323  D 08900 03854 T
1478                B      LMCK                                      7  03335  J 03402
1479      LMODE     MLCS   @L@,WRITE1         LOAD MODE CODES       12  03342  D 08901 04457 3
1480                MLCS   @L@,WRITE2         LOAD MODE CODES       12  03354  D 08901 05058 3
1481                MLCS   @L@,WRITE3         LOAD MODE CODES       12  03366  D 08901 05659 3
1482                MLCS   @L@,WRITE4         LOAD MODE CODES       12  03378  D 08901 06260 3
1483                MLCA   @LOAD@,OPMSG&16                          12  03390  D 08905 03854 T
1484      LMCK      SW     PATRN&954          SET 5 WORD MARKS       6  03402  , 09954
1485                SW                         IN PATTERN            1  03408  ,
1486                SW                                               1  03409  ,
1487                SW                                               1  03410  ,
1488                SW                                               1  03411  ,
1489      MDOUT     CW     SW25,SW45                                 11  03412  ¤ 05109 06311
1490                CW     SW15,SW35                                 11  03423  ¤ 04508 05710
1491                MLNA   &PERR,STARAD                              12  03434  D 08910 01681 /
1492                MLNA   &ERROUT,STOPAD                            12  03446  D 08915 01686 /
1493                MLCA   CH1&36,NO1&36      MOVE READY             12  03458  D 01836 07491 T
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PGLIN     LABEL     OPCOD  OPERAND                                    CT  ADDRS  INSTRUCTION
1494                MLCA   CH2&36,NO2&36       DRIVE NUMBERS          12  03470  D 01874 07675 T
1495                MLCA   CH3&36,NO3&36        TO ERROR SUMMARY      12  03482  O 01912 07859 T
1496                MLCA   CH4&36,NO4&36         MESSAGE              12  03494  D 01950 08043 T
1497                MRCWG  TOTALS,TOT11        ZERO                   12  03506  D 08358 07512 L
1498                MRCWG  TOTALS,TOT12         ERROR                 12  03518  O 08358 07570 L
1499                MRCWG  TOTALS,TOT21          COUNT                12  03530  O 08358 07696 L
1500                MRCWG  TOTALS,TOT22           AREAS               12  03542  O 08358 07754 L
1501                MRCWG  TOTALS,TOT31            IN ERROR           12  03554  O 08358 07880 L
1502                MRCWG  TOTALS,TOT32             MESSAGES          12  03566  O 08358 07938 L
1503                MRCWG  TOTALS,TOT41                               12  03578  O 08358 08064 L
1504                MRCWG  TOTALS,TOT42                               12  03590  O 08358 08122 L
1505                S      WKAR5               INITALIZE UPOATE ROUTINE *****  6  03602  S 08317
1506                S      TMPCNT                                     6  03608  S 01220
1507                S      PRMCNT                                     6  03614  S 08309
1508                SW     PATRN&2,FRECW       UPDATE HSKP *****      11  03620  , 09002 06349
1509                CW     IOW1,IOW2           INITALIZE              11  03631  ¤ 04362 04963
1510                CW     IOW3,IOW4            I O PORTION           11  03642  ¤ 05564 06165
1511                SW     X5-4                ZERO                   6  03653  , 00045
1512                S      X5                   X5                    6  03659  S 00049
1513                SW     SWF1&1,SWF2&1                              11  03665  , 03949 04550
1514                SW     SWF3&1,SWF4&1                              11  03676  , 05151 05752
1515                CW     CH1W,CH2W           INITALIZE RDY          11  03687  ¤ 03915 04516
1516                CW     CH3W,CH4W            DRV CHECK             11  03698  ¤ 05117 05718
1517                BCE    *&8,CH1&4,          SET SWITCHES           12  03709  B 03728 01804
1518                B      *&7                                        7  03721  J 03734
1519                SW     CH1W                 TO MARK               6  03728  , 03915
1520                BCE    *&8,CH2&4,                                 12  03734  B 03753 01842
1521                B      *&7                   THAT THERE           7  03746  J 03759
1522                SW     CH2W                                       6  03753  , 04516
1523                BCE    *&8,CH3&4,             ARE NO              12  03759  B 03778 01880
1524                B      *&7                                        7  03771  J 03784
1525                SW     CH3W                    READY ORIVES       6  03778  , 05117
1526                BCE    *&8,CH4&4,                                 12  03784  B 03803 01918
1527                B      *&7                      ON A CHANNEL      7  03796  J 03809
1528                SW     CH4W                                       6  03803  , 05718
1529      * ***************************************************
1530      *     **** TYPE OPERATING CONDITIONS ONCE  ****
1531      * ***************************************************
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PGLIN   LABEL     OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION

1532              NOPWM                    BRANCH AFTER     1  03809  N
1533    CONDSW    B      INC                FIRST PASS      7  03810  J 03872
1534              B      TYP1                               7  03817  J 01087
1535              DCW    @ USING@,G                         6  03829
1536              B      TYP1                               7  03831  J 01087
1537     OPMSG    DCW    @     PARITY,      MODE,   OVERLAP@,G  33  03838
1538    INQ       BNQ    ITR                INQUIRY          7  03872  J 01011 Q
1539    * ************************************************
1540    *              TAPE WRITE ROUTINE
1541    * ************************************************
1542    WROUT     SW     ZERO&2,ZERO&4      START NEXT REC  11  03879  , 01225 01227
1543              SW                                        1  03890  ,
1544              SW     X1-4               CLEAR INDEX     6  03891  , 00025
1545              S      X1                  REGISTERS      6  03897  S 00029
1546    UPDATE    A      &4,X1              STEP DRIVE NO   11  03903  A 08885 00029
1547    * ************************************************
1548    *              CHANNEL ONE WRITE
1549    * ************************************************
1550              NOPWM                    SWITCH           1  03914  N
1551    CH1W      B      *&8                BR IF NO RDY TAPES  7  03915  J 03929
1552              B      SWF1               TAPES ON CH1     7  03922  J 03948
1553    PS11      CW     ZERO&1             MARK NO TAPES CH1  6  03929  ¤ 01224
1554              SW     SWF1&1             SKIP OLAP TEST   6  03935  , 03949
1555              B      CH2W-1             BR CH2           7  03941  J 04515
1556    SWF1      NOPWM                                     1  03948  N
1557              B      IOW1X              BR FIRST TIME    7  03949  J 04355
1558    *             CHECK OVERLAP  **********************
1559              BW     STWM1,CH1-4&X1   DRV OUT OF TEST IF WM  12  03956  V 04156 01726 1
1560              BEX1   NOWT1,.            BR ANY BUT DATA CHK  7  03968  R 04162 .
1561              MLCS   WRITE1&3,MSG11&15. IDENTIFY        12  03975  O 04460 04064 3
1562              MLCS   WRITE1&3,MSG12&15   OR NO          12  03987  O 04460 04134 3
1563              BW     AVAIL1,OLAP&1      BR IF OLAP ON   12  03999  V 04093 08301 1
1564              BCE    *&8,SYS1&7,1       BR OLAP AVAIL   12  04011  B 04030 01263 1
1565              B      NOWT1&8       BR IF NO OLAP AVAIL  7  04023  J 04170
1566              BCE    NOWT1,TAD4,1       BR IF NOT USING OLAP  12  04030  B 04162 01004 1
1567    ERR1      B      TYP1               TYPE ROUT        7  04042  J 01087
1568     MSG11    DCW    @0IONT BR CLAP,1 @,G               16  04049
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PGLIN  LABEL   OPCOD  OPERAND                  COMMENTS                CT  ADDRS  INSTRUCTION
1569           BCE    *&8,TAD2,1               HALT TAD                12  04066  B 04085 01002 1
1570           B      *&2                      AROUND HALT              7  04078  J 04085
1571   HALT11  H                               HALT                     1  04085  .
1572   NOHLT1  B      STWM1                    BR OUT OF ROUT           7  04086  J 04156
1573   AVAIL1  BCE    MSG12-7,TAD4,1           BR IF NOT USING OLAP    12  04093  B 04112 01004 1
1574           B      STWM1                    BR IF USING OLAP         7  04105  J 04156
1575           B      TYP1                     TYPE ROUT                7  04112  J 01087
1576    MSG12  DCW    @8RANCHED OLAP,1 @,G                             16  04119
1577           BCE    *&8,TAD2,1               HALT TAO                12  04136  B 04155 01002 1
1578           B      *&2                      ARDUNO HALT              7  04148  J 04156
1579   HALT12  H                               HALT                     1  04155  .
1580   STWM1   CW     OLAP&1                   RESET OLAP SWITCH        6  04156  ¤ 08301
1581   NOWT1   NOPWM                                                    1  04162  N
1582           BOL1   *-7            LOOP                              7  04163  J 04162 1 G
1583   NOLAP1  BA1    *&8                      BR ANY ERRORS            7  04170  R 04184 M
1584           B      NOER1                    NO ERRORS                7  04177  J 04348
1585           BW     CH2W-1,CH1&X1            BR IF OR WENT NTRDY     12  04184  V 04515 018#0 1
1586           MLCS   WRITE1&3,MSG12&15                                12  04196  D 04460 04134 3
1587           MRCG   MSG12&14,MSGER&14        OR & CH TO MSG          12  04208  D 04133 07075 $
1588           MLCS   WRITE1&1,CHCODE          SET UP                  12  04220  D 04458 01692 3
1589           MLCS   @R@,CHSTAT                 CHANNEL               12  04232  D 08916 01693 3
1590           MLCS   WRITE1&3,TONO            ALTER ROUTINE           12  04244  D 04460 01708 3
1591           MLNA   C1,ORFINW&5              ERROR                   12  04256  D 01162 07176 /
1592           MLNA   T11,AOOT&10               ROUTINE                12  04268  D 08322 07234 /
1593           MLNA   T12,ADOP&10                AOORESSES             12  04280  D 08327 07281 /
1594           MLNA   C1,ORNG&5                                        12  04292  D 01162 07369 /
1595           MLCS   @1@,PMMSG&17             MOVE CH NO TO MSG       12  04304  D 08917 07394 3
1596           B      ERROUT                                            7  04316  J 06907
1597           SW     SW15                     SWITCH FOR RE-WRITE      6  04323  , 04508
1598           BW     NOER1,CH1-4&X1           NEXT WR ON INOC. 1,8    12  04329  V 04348 017Z6 1
1599           B      WRITE1                    WRITE REC AGAIN         7  04341  J 04457
1600   NOER1   B      RESET                     ZERO ERROR COUNTERS     7  04348  J 08251
1601   IDW1X   CW     SWF1&1                   CLEAR SWITCH             6  04355  ¤ 03949
1602           NOP                             SWITCH                   1  04361  N
1603   IDW1    B      NOIOW1                   BR ARNO IDENT MOVES      7  04362  J 04393
1604   FREC1   MLCS   CH1&X1,PATRN&1           MOVE CH & OR NO         12  04369  D 018#0 09001 3
1605           MLCS   @1@,PATRN                 TO FIRST REC           12  04381  D 08917 09000 3
1606   NOIDW1  MLCS   CH1&X1,WRITE1&3          MOVE OR NO              12  04393  O 018#0 04460 3
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PGLIN     LABEL     OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
1607                BCE    PS11,CH1&X1,      PASS OVER      12  04405  B 03929 018#0
1608                BW     CH2W-1,CH1&X1     BR- DRV OUT OF TEST 12 04417 V 04515 018#0 1
1609                CW     NTPW1             ERROR SUMMARY CH 1  6 04429  ¤ 07425
1610                NOP                      SWITCH          1  04435  N
1611      SCLOP1    BOL1   *-6               WAIT IF SCOPE LOOP  7 04436  J 04436 1
1612                BA1    *&1               FOR SCOPE LOOP      7 04443  R 04450 M
1613                BNQ    ITR               INQUIRY REQUEST     7 04450  J 01011 Q
1614      WRITE1    WTB    11,PATRN&X5                          10 04457  M %B1 09#*0 W
1615                NOPWM                    SWITCH          1  04467  N
1616      OLAP1     BOL1   MOL1              BR-OLAP         7  04468  J 04489 1
1617                BCB1   WRITE1              - BUSY        7  04475  R 04457 2
1618                B      *&7                               7  04482  J 04495
1619      MOL1      SW     OLAP&1            MARK OLAPED     6  04489  , 08301
1620                BCE    SCLOP1-1,TAD1,1   SCOPE LOOP      12 04495  B 04435 01001 1
1621                NOPWM                    RE-READ         1  04507  N
1622      SW15      B      NOWT1              SWITCH         7  04508  J 04162
1623                NOPWM                                    1  04515  N
1624      CH2W      B      *&8               CH3             7  04516  J 04530
1625      * **************************************************
1626      *              CHANNEL TWO WRITE
1627      * **************************************************
1628                B      SWF2              BR IF TAPES ON CH2  7 04523  J 04549
1629      PS22      CW     ZERO&2            MARK NO TAPES CH2   6 04530  ¤ 01225
1630                SW     SWF2&1            TO SKIP OLAP TEST   6 04536  , 04550
1631                B      CH3W-1            BR CH3              7 04542  J 05116
1632      SWF2      NOPWM                                    1  04549  N
1633                B      IDW2X             BR FIRST TIME   7  04550  J 04956
1634      *             CHECK OVERLAP    **********************
1635                BW     STWM2,CH2-4&X1   DRV OUT OF TEST IF WM 12 04557 V 04757 018T4 1
1636                BEX2   NOWT2,.            BR ANY BUT DATA CHK 7 04569 X 04763 .
1637                MLCS   WRITE2&3,MSG21&15  IDENTIFY        12  04576  D 05061 04665 3
1638                MLCS   WRITE2&3,MSG22&15    OR NO         12  04588  D 05061 04735 3
1639                BW     AVAIL2,OLAP&2      BR IF OLAP ON    12  04600  V 04694 08302 1
1640                BCE    *&8,SYS1&7,1       BR IF OLAP AVAIL 12  04612  B 04631 01263 1
1641                B      NOWT2&8        BR IF NO OLAP AVAIL  7  04624  J 04771
1642                BCE    NOWT2,TAD4,1       BR IF NOT USING OLAP 12 04631 B 04763 01004 1
1643      ERR2      B      TYP1               TYPE ROUT       7  04643  J 01087
1644       MSG21    DCW    @DIONT BR CLAP,2 @,G               16 04650
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PGLIN   LABEL    OPCDD  OPERAND                    CT  ADDRS  INSTRUCTION
1645             BCE    *&8,TAD2,1                 12  04667  B 04686 01002 1
1646             B      *&2                        7   04679  J 04687
1647             H                                 1   04686  .
1648             B      STWM2                      7   04687  J 04757
1649    AVAIL2   BCE    MSG22-7,TAC4,1             12  04694  B 04713 01004 1
1650             B      STWM2                      7   04706  J 04757
1651             B      TYP1                       7   04713  J 01087
1652    MSG22    DCW    @BRANCHED DLAP,2 @,G       16  04720
1653             BCE    *&8,TAD2,1                 12  04737  B 04756 01002 1
1654             B      *&2                        7   04749  J 04757
1655             H                                 1   04756  .
1656    STWM2    CW     DLAP&2                     6   04757  ¤ 08302
1657    NOWT2    NOPWM                             1   04763  N
1658             BCL2   *-7          LOOP           7   04764  J 04763 2
1659    NOLAP2   BA2    *&8                        7   04771  X 04785 M G
1660             B      NDER2                      7   04778  J 04949
1661             BW     CH3W-1,CH2&X1              12  04785  V 05116 018T8 1
1662             MLCS   WRITE2&3,MSG22&15          12  04797  D 05061 04735 3
1663             MRCG   MSG22&14,MSGER&14          12  04809  D 04734 07075 $
1664             MLCS   WRITE2&1,CHCODE            12  04821  D 05059 01692 3
1665             MLCS   @X@,CHSTAT                 12  04833  D 08918 01693 3
1666             MLCS   WRITE2&3,TCNO              12  04845  D 05061 01708 3
1667             MLNA   C2,ORFINW&5                12  04857  D 01167 07176 /
1668             MLNA   C2,ORNG&5                  12  04869  D 01167 07369 /
1669             MLNA   T21,ADDT&10                12  04881  D 08332 07234 /
1670             MLNA   T22,ADDP&10                12  04893  D 08337 07281 /
1671             MLCS   @2@,PMMSG&17               12  04905  D 08919 07394 3
1672             B      ERROUT                     7   04917  J 06907
1673             SW     SW25                       6   04924  , 05109
1674             BW     NDER2,CH2-4&X1             12  04930  V 04949 018T4 1
1675             B      WRITE2                     7   04942  J 05058
1676    NOER2    B      RESET                      7   04949  J 08251
1677    IDW2X    CW     SWF2&1                     6   04956  ¤ 04550
1678             NOP                               1   04962  N
1679    IDW2     B      NOIDW2                     7   04963  J 04994
1680    FREC2    MLCS   CH2&X1,PATRN&1             12  04970  D 018T8 09001 3
1681             MLCS   @2@,PATRN                  12  04982  D 08919 09000 3
1682    NOIDW2   MLCS   CH2&X1,WRITE2&3            12  04994  D 018T8 05061 3
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PGLIN     LABEL    * OPCOD  OPERAND                  COMMENTS                CT  ADDRS  INSTRUCTION
1683                 BW      CH3W-1,CH2&X1            BR IF DRV NTRDY         12  05006  V 05116 018T8 1
1684                 BCE     PS22,CH2&X1,             PASS OVER               12  05018  B 04530 018T8
1685                 CW      NTPW2                    ERROR SUMMARY CH 2       6  05030  ¤ 07609
1686                 NOP                              SWITCH                   1  05036  N
1687      SCLOP2     BOL2    *-6                      WAIT IF SCOPE LOOP       7  05037  J 05037 2
1688                 BA2     *&1                      FOR SCOPE LOOP           7  05044  X 05051 M
1689                 BNQ     ITR                      INQUIRY REQUEST          7  05051  J 01011 Q
1690      WRITE2     WTB     21,PATRN&X5                                      10  05058  M ¤B1 09**0 W
1691                 NOPWM                            SWITCH                   1  05068  N
1692      OLAP2      BOL2    MOL2                     BR- OLAP                 7  05069  J 05090 2
1693                 BCB2    WRITE2                     - BUSY                 7  05076  X 05058 2
1694                 B       *&7                                               7  05083  J 05096
1695      MOL2       SW      OLAP&2                   MARK OLAPED              6  05090  , 08302
1696                 BCE     SCLOP2-1,TAD1,1          SCOPE LOOP              12  05096  B 05036 01001 1
1697                 NOPWM                            RE-READ                  1  05108  N
1698      SW25       B       NOWT2                     SWITCH                  7  05109  J 04763
1699                 NOPWM                                                     1  05116  N
1700      CH3W       B       *&8                      BR IF NO RDY DRIVES      7  05117  J 05131
1701      * **********************************************************
1702      *                CHANNEL THREE WRITE
1703      * **********************************************************
1704                 B       SWF3                     BR- TAPES ON CH3         7  05124  J 05150
1705      PS33       CW      ZERO&3                                            6  05131  ¤ 01226
1706                 SW      SWF3&1                   TO SKIP OLAP TEST        6  05137  , 05151
1707                 B       CH4W-1                   BR CH4                   7  05143  J 05717
1708      SWF3       NOPWM                                                     1  05150  N
1709                 B       IDW3X                    BR IF NO READ            7  05151  J 05557
1710      * **********          CHECK OVERLAP          **********
1711                 BW      STWM3,CH3-4&X1   DRV OUT OF TEST IF WM           12  05158  V 05358 018X2 1
1712                 DCW     @3@                      BR ANY                   1  05170
1713                 DC      NOWT4                     BUT                     5  05175  05965
1714                 DC      @.@                       DATA CHK                1  05176
1715                 MLCS    WRITE3&3,MSG31&15  MOVE DR NO                   12  05177  D 05662 05266 3
1716                 MLCS    WRITE3&3,MSG32&15   TO MSG                      12  05189  D 05662 05336 3
1717                 BW      AVAIL3,OLAP&3            BR IF OVERLAPED         12  05201  V 05295 08303 1
1718                 BCE     *&8,SYS1&7,1             BR IF OLAP AVAIL        12  05213  B 05232 01263 1
1719                 B       NOWT3&8        BR IF NO OLAP AVAIL               7  05225  J 05372
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PGLIN     LABEL     OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
1720                BCE    NOWT3,TAD4,1       BR IF NOT USING OLAP  12  05232  B 05364 01004 1
1721      ERR3      B      TYP1               TYPE ROUT          7  05244  J 01087
1722       MSG31    DCW    @DIDNT BR OLAP,3 @,G                 16  05251
1723                BCE    *&8,TAD2,1         HALT TAD           12  05268  B 05287 01002 1
1724                B      *&2                AROUND HALT        7  05280  J 05288
1725      HALT31    H                         HALT               1  05287  .
1726                B      STWM3              BR OUT OF ROUTINE  7  05288  J 05358
1727      AVAIL3    BCE    MSG32-7,TAD4,1     BR IF NOT USING OLAP  12  05295  B 05314 01004 1
1728                B      STWM3              BR IF USING OLAP   7  05307  J 05358
1729                B      TYP1                                  7  05314  J 01087
1730       MSG32    DCW    @BRANCHED OLAP,3 @,G                 16  05321
1731                BCE    *&8,TAD2,1         HALT TAD           12  05338  B 05357 01002 1
1732                B      *&2                ARND HALT          7  05350  J 05358
1733      HALT32    H                         HALT               1  05357  .
1734      STWM3     CW     OLAP&3                                6  05358  ¤ 08303
1735      NOWT3     NOP                                          1  05364  N
1736                DC     @J@          LOOP IF                 1  05365
1737                DC     NOWT3         OVERLAP ON             5  05370  05364
1738                DC     3                                    1  05371
1739                DCW    @3@           BRANCH                 1  05372
1740                DC     B1W            ANY                   5  05377  05386
1741                DC     @M@             ERRORS               1  05378
1742                B      NOER3         NO ERRORS              7  05379  J 05550
1743      B1W       BW     CH4W-1,CH3&X1      BR IF DRV WENT NTRDY  12  05386  V 05717 018X6 1
1744                MLCS   WRITE3&3,MSG32&15                     12  05398  D 05662 05336 3
1745                MRCG   MSG32&14,MSGER&14  DR & CH TO MSG     12  05410  D 05335 07075 $
1746                MLCS   WRITE3&1,CHCODE    SET UP             12  05422  D 05660 01692 3
1747                MLCS   @3@,CHSTAT          CH ALTER          12  05434  D 08920 01693 3
1748                MLCS   WRITE3&3,TCNO         ROUTINE         12  05446  D 05662 01708 3
1749                MLNA   C3,DRFINW&5        ERROR              12  05458  D 01172 07176 /
1750                MLNA   T31,ADDT&10         ROUTINE           12  05470  D 08342 07234 /
1751                MLNA   T32,ADDP&10           ADDRESSES       12  05482  D 08347 07281 /
1752                MLNA   C3,DRNG&5                             12  05494  D 01172 07369 /
1753                MLCS   @3@,PMMSG&17        MOVE CH NO TO MSG  12  05506  D 08920 07394 3
1754                B      ERROUT                                7  05518  J 06907
1755                SW     SW35               SWITCH FOR RE-WRITE  6  05525  , 05710
1756                BW     NOER3,CH3-4&X1     NEXT WR ON INDC 1,B  12  05531  V 05550 018X2 1
1757                B      WRITE3             WRITE REC AGAIN    7  05543  J 05659
```

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PGLIN   LABEL     OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
1758    NOER3     B      RESET                 ZERO ERROR COUNTERS   7  05550  J 08251
1759    IOW3X     CW     SWF3&1                CLEAR SWITCH          6  05557  ¤ 05151
1760              NOP                                                1  05563  N
1761    IOW3      B      NOIOW3                BR ARND IOENT MOVES   7  05564  J 05595
1762              MLCS   CH3&X1,PATRN&1        MOVE CH & DR NO      12  05571  D 018X6 09001 3
1763              MLCS   @3@,PATRN              TO FIRST REC         12  05583  D 08920 09000 3
1764    NOIOW3    MLCS   CH3&X1,WRITE3&3       MOVE OR NO           12  05595  D 018X6 05662 3
1765              BCE    PS33,CH3&X1,          CHANNEL FINISHED     12  05607  B 05131 018X6
1766              BW     CH4W-1,CH3&X1         BR- ORV OUT OF TEST  12  05619  V 05717 018X6 1
1767              CW     NTPW3                 ERROR SUMMARY CH 3    6  05631  ¤ 07793
1768              NOP                          SWITCH                1  05637  N
1769    SCLOP3    DCW    @J@                   WAIT                  1  05638
1770              DC     SCLOP3                 IF SCOPE             5  05643  05638
1771              DC     3                       LOOP                1  05644
1772              DCW    @3@                   FOR                   1  05645
1773              DC     INQW3                  SCOPE LOOP           5  05650  05652
1774              DC     @M@                                         1  05651
1775    INQW3     BNQ    ITR                   INQUIRY REQUEST       7  05652  J 01011 Q
1776     WRITE3   DCW    @MMB1@                WRITE                 4  05659
1777              DC     PATRN&X5                                    5  05667  09**0
1778              DC     @W@                                         1  05668
1779              NOPWM                                              1  05669  N
1780    CLAP3     DCW    @J@                   BRANCH                1  05670
1781              DC     MOL3                   OLAP                 5  05675  05691
1782              DC     3                                           1  05676
1783              DCW    @3@                   BRANCH                1  05677
1784              DC     WRITE3                 BUSY                 5  05682  05659
1785              DC     2                                           1  05683
1786              B      *&7                                         7  05684  J 05697
1787    MOL3      SW     OLAP&3                MARK OLAPED           6  05691  . 08303
1788              BCE    SCLOP3-1,TAD1,1       SCOPE LOOP           12  05697  B 05637 01001 1
1789              NOPWM                        RE-READ               1  05709  N
1790    SW35      B      NOWT3                  SWITCH               7  05710  J 05364
1791              NOPWM                        BR TO BYPASS          1  05717  N
1792    CH4W      B      *&8                   BR IF NO ROY DRIS     7  05718  J 05732
1793    * ************************************************
1794    *              CHANNEL FOUR WRITE
1795    * ************************************************
```

```
PGLIN     LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
 1796               B      SWF4              BR- TAPES ON CH4        7  05725  J 05751
 1797     PS44      CW     ZERO&4                                    6  05732  ¤ 01227
 1798               SW     SWF4&1            TO SKIP OLAP TEST       6  05738  . 05752
 1799               B      MORDRW            LOOK FOR MORE DRIVES    7  05744  J 06318
 1800     SWF4      NOPWM                                             1  05751  N
 1801               B      IDW4X             BR IF NO READ           7  05752  J 06158
 1802     * ********** CHECK OVERLAP **********
 1803               BW     STWM4,CH4-4&X1    DRV OUT OF TEST IF WM  12  05759  V 05959 019/0 1
 1804               DCW    @1@               BR ANY                  1  05771
 1805               DC     NOWT4              BUT                    5  05776  05965
 1806               DC     @.@                 DATA CHK              1  05777
 1807               MLCS   WRITE4&3,MSG41&15 MOVE DR NO              12  05778  D 06263 05867 3
 1808               MLCS   WRITE4&3,MSG42&15  TO MSG                 12  05790  D 06263 05937 3
 1809               BW     AVAIL4,OLAP&4     BR IF OVERLAPED         12  05802  V 05896 08304 1
 1810               BCE    *&8,SYS1&7,1      BR IF OLAP AVAIL        12  05814  B 05833 01263 1
 1811               B      NOWT4&8       BR IF NO OLAP AVAIL          7  05826  J 05973
 1812               BCE    NOWT4,TAD4,1      BR IF NOT USING OLAP    12  05833  B 05965 01004 1
 1813     ERR4      B      TYP1              TYPE ROUT               7  05845  J 01087
 1814      MSG41    DCW    @DIDNT BR OLAP,4 @.G                     16  05852
 1815               BCE    *&8,TAD2,1        HALT TAD                12  05869  B 05888 01002 1
 1816               B      *&2               AROUND HALT             7  05881  J 05889
 1817     HALT41    H                        HALT                    1  05888  .
 1818               B      STWM4             BR OUT OF ROUTINE       7  05889  J 05959
 1819     AVAIL4    BCE    MSG42-7,TAD4,1    BR IF NOT USING OLAP   12  05896  B 05915 01004 1
 1820               B      STWM4             BR IF USING OLAP        7  05908  J 05959
 1821               B      TYP1                                      7  05915  J 01087
 1822      MSG42    DCW    @BRANCHED OLAP,4 @.G                     16  05922
 1823               BCE    *&8,TAD2,1        HALT TAD                12  05939  B 05958 01002 1
 1824               B      *&2               ARND HALT               7  05951  J 05959
 1825     HALT42    H                        HALT                    1  05958  .
 1826     STWM4     CW     OLAP&4                                    6  05959  ¤ 08304
 1827     NOWT4     NOP                                              1  05965  N
 1828               DC     @J@          LOOP IF                     1  05966
 1829               DC     NOWT4              OVERLAP ON            5  05971  05965
 1830               DC     4                                        1  05972
 1831               DCW    @1@               BRANCH                 1  05973
 1832               DC     B2W                ANY                   5  05978  05987
 1833               DC     @M@                 ERRORS               1  05979
```

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PGLIN     LABEL     OPCOD  OPERAND                  CT  ADDRS  INSTRUCTION
1834                B      NOER4                     7  05980  J 06151
1835      B2W       BW     MORORW,CH4&X1            12  05987  V 06318 019/4 1
1836                MLCS   WRITE4&3,MSG42&15         12  05999  D 06263 05937 3
1837                MRCG   MSG42&14,MSGER&14        12  06011  D 05936 07075 $
1838                MLCS   WRITE4&1,CHCODE          12  06023  O 06261 01692 3
1839                MLCS   @1@,CHSTAT               12  06035  D 08917 01693 3
1840                MLCS   WRITE4&3,TDNO            12  06047  D 06263 01708 3
1841                MLNA   C4,DRFINW&5              12  06059  D 01177 07176 /
1842                MLNA   T41,AODT&10              12  06071  D 08352 07234 /
1843                MLNA   T42,AOOP&10              12  06083  D 08357 07281 /
1844                MLNA   C4,DRNG&5                12  06095  D 01177 07369 /
1845                MLCS   @4@,PMMSG&17             12  06107  D 08921 07394 3
1846                B      ERROUT                    7  06119  J 06907
1847                SW     SW45                      6  06126  , 06311
1848                BW     NOER4,CH4-4&X1           12  06132  V 06151 019/0 1
1849                B      WRITE4                    7  06144  J 06260
1850      NOER4     B      RESET                     7  06151  J 08251
1851      IDW4X     CW     SWF4&1                    6  06158  ¤ 05752
1852                NOP                              1  06164  N
1853      IOW4      B      NOIDW4                    7  06165  J 06196
1854                MLCS   CH4&X1,PATRN&1           12  06172  D 019/4 09001 3
1855                MLCS   @4@,PATRN                12  06184  D 08921 09000 3
1856      NOIOW4    MLCS   CH4&X1,WRITE4&3           12  06196  D 019/4 06263 3
1857                BCE    PS44,CH4&X1,             12  06208  B 05732 019/4
1858                BW     MORDRW,CH4&X1            12  06220  V 06318 019/4 1
1859                CW     NTPW4                     6  06232  ¤ 07977
1860                NOP                              1  06238  N
1861      SCLOP4    DCW    @J@                       1  06239
1862                DC     SCLOP4                    5  06244  06239
1863                DC     4                         1  06245
1864                DCW    @1@                       1  06246
1865                DC     INQW4                     5  06251  06253
1866                DC     @M@                       1  06252
1867      INQW4     BNQ    ITR                       7  06253  J 01011 Q
1868      WRITE4    DCW    @M.B1@                    4  06260
1869                DC     PATRN&X5                  5  06268  09**0
1870                DC     @W@                       1  06269
1871                NOPWM                            1  06270  N
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PGLIN     LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
1872      OLAP4     DCW    @J@              BRANCH                   1  06271
1873                DC     MOL4              OLAP                    5  06276  06292
1874                DC     4                                         1  06277
1875                DCW    @1@              BRANCH                   1  06278
1876                DC     WRITE4            BUSY                    5  06283  06260
1877                DC     2                                         1  06284
1878                B      *&7                                       7  06285  J 06298
1879      MOL4      SW     OLAP&4           MARK OLAPED              6  06292  . 08304
1880                BCE    SCLOP4-1,TAD1,1  SCOPE LOOP               12  06298  B 06238 01001 1
1881                NOPWM                   RE-READ                  1  06310  N
1882      SW45      B      NOWT4             SWITCH                  7  06311  J 05965
1883      * ****************************************************
1884      *              LOOK FOR MORE DRIVES   ****************
1885      * ****************************************************
1886      *
1887      MORDRW    BW     UPDATE,ZERO&4,1  BRANCH IF                12  06318  V 03903 01227 1
1888                BW     UPDATE            ALL DRIVES              6  06330  V 03903
1889                BW     UPDATE             NOT FINISHED           6  06336  V 03903
1890                BW     UPDATE              ON THIS CH            6  06342  V 03903
1891      * ****************************************************
1892      *              ROUTINE TO UPDATE WRITE RECORDS
1893      * ****************************************************
1894                NOP                                              1  06348  N
1895      FRECW     MLCA   @950@,X5         INITIALIZE X5            12  06349  D 08924 00049 T
1896                SW     IDW1,IDW2        BR AROUND MOVES FOR      11  06361  . 04362 04963
1897                SW     IDW3,IDW4         DR & CH IDENT           11  06372  . 05564 06165
1898                A      @1@,ZRE                                   11  06383  A 08917 09958
1899                A      @1@,TMPCNT                                11  06394  A 08917 01220
1900                MLCB   @DC@,PATRN&1     MOV CHARS- REPLAC ID     12  06405  D 08926 09001 L
1901                CW     PATRN&2,FRECW    CLEAR IDENT. REC         11  06417  ¤ 09002 06349
1902                C      TMPCNT,ONE01     SEE IF 100 TH. PASS      11  06428  C 01220 01010
1903                BE     *&8              BR ON 101ST PASS          7  06439  J 06453 S
1904                B      WROUT            WRITE NEXT REC            7  06446  J 03879
1905                S      TMPCNT           ZERO TMP COUNTER          6  06453  S 01220
1906                A      STPINC,WKAR5     STEP INCREMENT           11  06459  A 08305 08317
1907                S      WKAR5,X5         TOTAL ADRS STEP          11  06470  S 08317 00049
1908                A      @1@,PRMCNT       NO OF REC STEPS          11  06481  A 08917 08309
1909                C      PRMCNT,@20@      COMP RECORD COUNT        11  06492  C 08309 08928
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PGLIN     LABEL     OPCOD  OPERAND                  CT  ADDRS  INSTRUCTION
1910                BE     FINUPW                   BR- ALL RECS WRITTEN   7  06503  J 06517 S
1911                B      WROUT                    WRITE NXT REC          7  06510  J 03879
1912      * ************************************************
1913      *          WRITE TAPE MARKS & REWIND ALL DRIVES
1914      * ************************************************
1915      FINUPW    CW     SWT1,SWT2                INITALIZE             11  06517  ¤ 06558 06584
1916                CW     SWT3,SWT4                 ROUTINE              11  06528  ¤ 06635 06686
1917                S      ZRE                                            6  06539  S 09958
1918                SW     X14-4                                          6  06545  , 00090
1919                S      X14                      CLEAR X14             6  06551  S 00094
1920                NOPWM                                                 1  06557  N
1921      SWT1      B      SWT2-1                   BR CH 2               7  06558  J 06583
1922                SW     SWT1                     SWITCH ARND CH 1      6  06565  , 06558
1923                BCE    STWTM,SYS1&12,1          BR IF CH 1           12  06571  B 06729 01268 1
1924                NOPWM                                                 1  06583  N
1925      SWT2      B      SWT3-1                   BR CH 3               7  06584  J 06634
1926                SW     SWT2                     SWITCH ARND CH 2      6  06591  , 06584
1927                BCE    *&8,SYS1&13,1            BR IF CH 2           12  06597  B 06616 01269 1
1928                B      SWT3-1                                         7  06609  J 06634
1929                ZA     &1,X14                   STEP CH CODE         11  06616  M 08863 00094
1930                B      STWTM                    BR TO TAPE INST       7  06627  J 06729
1931                NOPWM                                                 1  06634  N
1932      SWT3      B      SWT4-1                   BR CH 4               7  06635  J 06685
1933                SW     SWT3                     SWITCH ARND CH3       6  06642  , 06635
1934                BCE    *&8,SYS1&14,1            BR IF CH 3           12  06648  B 06667 01270 1
1935                B      SWT4-1                   BR CH 4               7  06660  J 06685
1936                ZA     &2,X14                   STEP CH CODE         11  06667  M 08929 00094
1937                B      STWTM                    BR TO TAPE INST       7  06678  J 06729
1938                NOPWM                                                 1  06685  N
1939      SWT4      B      SUMW                     BR ERROR SUMMARY      7  06686  J 07424
1940                SW     SWT4                     SWITCH OUT OF ROUT    6  06693  , 06686
1941                BCE    *&8,SYS1&15,1            BR IF CH 4           12  06699  B 06718 01271 1
1942                B      SUMW                     BR ERROR SUMMARY      7  06711  J 07424
1943                ZA     &3,X14                   STEP CH CODE         11  06718  M 08930 00094
1944      STWTM     MLCS   @0@,WTM2&3               ZERO                 12  06729  D 08884 06860 3
1945                MLCS   @0@,RWD2&3                OR NO               12  06741  D 08884 06872 3
1946                MLCS   CHOP&X14,WTM2&1          CHANNEL              12  06753  D 09100 06858 3
1947                MLCS   CHOP&X14,RWD2&1           CODE                12  06765  D 09100 06870 3
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PGLIN     LABEL     OPCOD  OPERAND                    CT  ADDRS  INSTRUCTION
1948                MLCS   TAN8&X14,BAW2      CHANNEL  12  06777  D 09108 06862 3
1949                MLCS   TAN8&X14,BAW3       CODE    12  06789  D 09108 06881 3
1950                MLCS   TAN8&X14,BCBW               12  06801  D 09108 06874 3
1951      STEP4     SW     WTM2&3,RWD2&3      STEP     11  06813  , 06860 06872
1952                A      &1,RWD2&3           DR NO   11  06824  A 08863 06872
1953                A      &1,WTM2&3            IN CONTROL 11  06835  A 08863 06860
1954                CW     WTM2&3,RWD2&3          INSTRUCTIONS 11  06846  ¤ 06860 06872
1955      WTM2      WTM    11                 WRITE TAPE MARKS  5  06857  U %01 M
1956      BAW2      BA1    *&1                RESET INTERLOCK   7  06862  R 06869 GM
1957      RWD2      RWD    11                 REWIND DRIVES     5  06869  U %01 R
1958      BCBW      BCB1   *-11                                 7  06874  R 06869 2
1959      BAW3      BA1    *&1                                  7  06881  R 06888 GM
1960                BCE    SWT1-1,RWD2&3,9    BR IF DR NO 9    12  06888  B 06557 06872 9
1961                B      STEP4              BR NEXT DR       7  06900  J 06813
1962      * ****************************************************
1963      *              WRITE ERROR ROUTINE
1964      * ****************************************************
1965      ERROUT    SBR    RETW&5             STORE BAR        7  06907  G 07252 B
1966                SBR    RETW2&5                             7  06914  G 07199 B
1967                B      CHSTT              BR CH ALTER ROUTINE  7  06921  J 01290
1968                MLCA   INDIC,MSGER&10      RESET ERROR MSG  12  06928  D 08993 07071 T
1969                BNR1   *&13                                 7  06940  R 06959 1
1970                MLCS   @ @,MSGER&6                         12  06947  D 08931 07067 3
1971                BER1   *&13                                 7  06959  R 06978 4
1972                MLCS   @ @,MSGER&7                         12  06966  D 08931 07068 3
1973                BEF1   *&13                                 7  06978  R 06997 8
1974                MLCS   @ @,MSGER&8                         12  06985  D 08931 07069 3
1975                BNT1   *&13                                 7  06997  R 07016 S8
1976                MLCS   @ @,MSGER&9                         12  07004  D 08931 07070 3
1977                BWL1   *&13                                 7  07016  R 07035 -
1978                MLCS   @ @,MSGER&10                        12  07023  D 08931 07071 3
1979                BEX1   *&13,.              TYPE ON INDC 1288A  7  07035  R 07054 .
1980                BCE    WORR,TAD0,1         TYPEOUT TAD      12  07042  B 07078 01000 1
1981                B      TYP1                TYPE ROUTINE     7  07054  J 01087
1982      MSGER     DCW    @INDC. 148AB TD  @,G                16  07061
1983      WORR      BCE    *&8,TAD2,1          BR IF HALT ON ERROR  12  07078  B 07097 01002 1
1984                B      *&2                 AROUND HALT      7  07090  J 07098
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PGLIN     LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
1985                H                              HALT              1  07097  .
1986      * ************************************************
1987      *              WRITE ERROR PORTION                  **
1988      * ************************************************
1989      WERRT     BCE    DRFINW,MSGER&6,1    BR- NOT READY       12  07098  B 07171 07067 1
1990                BCE    NFOILW,MSGER&7,4      - DATA CHECK      12  07110  B 07201 07068 4
1991                BCE    RWDNR,MSGER&8,8      -FOIL STRIP        12  07122  B 07152 07069 8
1992                BCE    DRFINW,MSGER&10,8    - W.L.R.           12  07134  B 07171 07071 8
1993                H      DRFINW&6             HALT ON INDC. 2 OR A  6  07146  . 07177
1994      RWDNR     RWD    11                   REWIND              5  07152  U %U1 R
1995                BCB1   *-11                  BR BUSY            7  07157  R 07152 2
                                                                          G
1996                BA1    *&1                                      7  07164  R 07171 M
1997      DRFINW    SW     00000&X1             MARK DRIVE OUT      6  07171  . 000#0
1998                SW     X6-4                                     6  07177  . 00050
                                                                          Q
1999                ZA     @6@,X6               STEP RETN ADDRESS  11  07183  M 08932 00054
2000      RETW2     B      0&X6                                     7  07194  J 00#.0
2001      NFOILW    A      &1,ZZZ               ADD 1 TO TMP COUNT 11  07201  A 08863 01228
2002                BCE    SKPW,ZZZ,2    BR IF 2 CONSEC ERRORS     12  07212  B 07254 01228 2
2003      ADDT      A      &1,00000&X1          ADD 1 TO TMP COUNT 11  07224  A 08863 000#0
2004                BSP    11                   BACKSPACE ONE REC   5  07235  U %U1 B
                                                                          G
2005                BA1    *-11                                     7  07240  R 07235 M
2006      RETW      B      0                    RETURN              7  07247  J 00000
2007      SKPW      S      ZZZ                  CLEAR COUNTER       6  07254  S 01228
2008                A      &1,YYY               SKIP COUNTER       11  07260  A 08863 01229
2009      ADDP      A      &1,00000&X1          ADD 1 TO SKIP COUNT 11  07271  A 08863 000#0
2010                MLCS   ADDT&10,SUBTRW&10    MOVE TEMP ADRS LOC 12  07282  D 07234 07308 3
2011                MLCS                                            1  07294  D
2012                MLCS                                            1  07295  D
2013                MLCS                                            1  07296  D
2014                MLCS                                            1  07297  D
2015      SUBTRW    S      @1@,00000     SUB PERM CNT FROM TEMP    11  07298  S 08917 00000
2016                BSP    11                   BACKSPACE           5  07309  U %U1 B
                                                                          G
2017                BA1    *-11                                     7  07314  R 07309 M
2018      SKIP1     SKP    11                   SKIP                5  07321  U %U1 E
                                                                          G
2019                BA1    *-11                                     7  07326  R 07321 M
2020                BCE    PERR,YYY,7           BR IF 7 CONSEC SKPS 12  07333  B 07352 01229 7
2021                B      RETW                 RETURN              7  07345  J 07247
```

```
PGLIN     LABEL     OPCOD  OPERAND                                  MOVE DR NO TO MSG
2022      PERR      MLCS   SKIP1&3,PMMSG&18                         MARK DR OUT OF TEST
2023      DRNG      SW     00000&X1
2024                8      TYP1
2025       PMMSG    DCW    @PERM WRITE ERROR  a,G
2026                BCE    *&8,TAD2,1
2027                8      *&2                                      AROUND HALT
2028                H                                               HALT
2029                8      RETW
2030      * ************************************************
2031      *              TYPE ERROR SUMMARY   *******************
2032      * ************************************************
2033      SUMW      NOP                                             8R IF NO
2034      NTPW1     8      NTPW2-1                                   CH 1 TAPES
2035                8      TYP1                                     TYPE ROUTINE
2036       WER1     DCW    @TDS CH 1a,G
2037                8      TYP1                                     TYPE ROUTINE
2038      NO1       DA     1X37,G
2039                       1,1
2040                8      TYP1                                     TYPE ROUTINE
2041                DCW    @TEMP@,G
2042                8      TYP1                                     TYPE ROUTINE
2043      TOT11     DA     1X37,G
2044                       1,1
2045                8      TYP1                                     TYPE ROUTINE
2046                DCW    @SKIPS@,G
2047                8      TYP1                                     TYPE ROUTINE
2048      TOT12     DA     1X37,G
2049                       1,1
2050                NOP                                             8R IF NO
2051      NTPW2     8      NTPW3-1                                   CH 2 TAPES
2052                8      TYP1                                     TYPE ROUTINE
2053       WER2     DCW    @TDS CH 2a,G
2054                8      TYP1                                     TYPE ROUTINE
2055      NO2       DA     1X37,G
2056                       1,1
2057                8      TYP1                                     TYPE ROUTINE
2058                DCW    @TEMP@,G
2059                8      TYP1                                     TYPE ROUTINE
```

```
CT  ADDRS  INSTRUCTION
12  07352  D 07324 07395 3
 6  07364  . 000#0
 7  07370  J 01087
19  07377
12  07397  B 07416 01002 1
 7  07409  J 07417
 1  07416  .
 7  07417  J 07247

 1  07424  N
 7  07425  J 07608
 7  07432  J 01087
 8  07439
 7  07448  J 01087
    07455
    07455
 7  07493  J 01087
 4  07503
 7  07505  J 01087
    07512
    07512
 7  07550  J 01087
 5  07561
 7  07563  J 01087
    07570
    07570
 1  07608  N
 7  07609  J 07792
 7  07616  J 01087
 8  07623
 7  07632  J 01087
    07639
    07639
 7  07677  J 01087
 4  07687
 7  07689  J 01087
```

PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
2060	TOT21	DA	1X37,G			07696	
2061			1,1			07696	
2062		B	TYP1	TYPE ROUTINE	7	07734	J 01087
2063		DCW	@SKIPS@,G		5	07745	
2064		B	TYP1	TYPE ROUTINE	7	07747	J 01087
2065	TOT22	DA	1X37,G			07754	
2066			1,1			07754	
2067		NOP		BR IF NO	1	07792	N
2068	NTPW3	B	NTPW4-1	CH 3 TAPES	7	07793	J 07976
2069		B	TYP1	TYPE ROUTINE	7	07800	J 01087
2070	WER3	DCW	@TDS CH 3@,G		8	07807	
2071		B	TYP1	TYPE ROUTINE	7	07816	J 01087
2072	NO3	DA	1X37,G			07823	
2073			1,1			07823	
2074		B	TYP1	TYPE ROUTINE	7	07861	J 01087
2075		DCW	@TEMP@,G		4	07871	
2076		B	TYP1	TYPE ROUTINE	7	07873	J 01087
2077	TOT31	DA	1X37,G			07880	
2078			1,1			07880	
2079		B	TYP1	TYPE ROUTINE	7	07918	J 01087
2080		DCW	@SKIPS@,G		5	07929	
2081		B	TYP1	TYPE ROUTINE	7	07931	J 01087
2082	TOT32	DA	1X37,G			07938	
2083			1,1			07938	
2084		NOP		BR IF NO	1	07976	N
2085	NTPW4	B	NDSUMW	CH 4 TAPES	7	07977	J 08160
2086		B	TYP1	TYPE ROUTINE	7	07984	J 01087
2087	WER4	DCW	@TDS CH 4@,G		8	07991	
2088		B	TYP1	TYPE ROUTINE	7	08000	J 01087
2089	NO4	DA	1X37,G			08007	
2090			1,1			08007	
2091		B	TYP1	TYPE ROUTINE	7	08045	J 01087
2092		DCW	@TEMP@,G		4	08055	
2093		B	TYP1	TYPE ROUTINE	7	08057	J 01087
2094	TOT41	DA	1X37,G			08064	
2095			1,1			08064	
2096		B	TYP1	TYPE ROUTINE	7	08102	J 01087

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PGLIN     LABEL     OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
2097                OCW    @SKIPS@,G                         5  08113
2098                B      TYP1              TYPE ROUTINE    7  08115  J 01087
2099      TOT42     OA     1X37,G                               08122
2100                       1,1                                  08122
2101      NOSUMW    CW     PATRN&954         CLEAR WORD MARKS  6  08160  ¤ 09954
2102                CW                        FROM PATTERN     1  08166  ¤
2103                CW                                         1  08167  ¤
2104                CW                                         1  08168  ¤
2105                CW                                         1  08169  ¤
2106                BCE    START,TAD3,1                       12  08170  B 02000 01003 1
2107                MRCWG  CH1,10            STORE RDY TBL INFO. 12  08182  O 0180C 00010 LD
2108                MRCWG  TAC0,170          SAVE TAOS          12  08194  D 01000 00170 LD
2109                B      TYP1                                 7  08206  J 01087
2110                DCW    @END WR PASS@,G                    11  08223
2111                B      LOADER            READ IN READ PASS  7  08225  J 00400
2112      ZZZ1      BCE    699,422,%                            12  08232  B 00699 00422 %
2113                B      START                                7  08244  J 02000
2114      * ****************************************************
2115      *              RESET ERROR ROUTINE IF NO ERRORS
2116      * ****************************************************
2117      RESET     SBR    RETN&5                               7  08251  G 08297 B
2118                S      YYY               CLEAR              6  08258  S 01229
2119                S      ZZZ                COUNTERS          6  08264  S 01228
2120                CW     SW25,SW45         CLEAR              11 08270  ¤ 05109 06311
2121                CW     SW15,SW35          ERROR SWITCHES    11 08281  ¤ 04508 05710
2122      RETN      B      0                 RETURN             7  08292  J 00000
2123                H                                          1  08299  .
2124      * ****************************************************
2125      * ********WRITE CONSTANTS   ************************
2126       OLAP     DC     @000000@                             5  08300
2127      STPINC             @5@                                1  08305
2128      PRMCNT    DCW    0000                                 4  08309
2129      CNTW      DCW    00                                   2  08311
2130      STPTOL             @100@                              3  08314
2131      WKAR5              @000@                              3  08317
2132      T11                TOT11-4            TABLE           5  08322  07508
2133      T12                TOT12-4             ADDRESSES      5  08327  07566
2134      T21                TOT21-4                            5  08332  07692
```

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PGLIN  LABEL    OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
2135   T22              T0T22-4                          5  08337  07750
2136   T31              T0T31-4                          5  08342  07876
2137   T32              T0T32-4                          5  08347  07934
2138   T41              T0T41-4                          5  08352  08060
2139   T42              T0T42-4                          5  08357  08118
2140   TOTALS   DCW    @  @                             2  08358
2141                    @    @          BLANKS FOR ERROR TABLE  4  08363
2142                    @    @                           4  08367
2143                    @    @                           4  08371
2144                    @    @                           4  08375
2145                    @    @                           4  08379
2146                    @    @                           4  08383
2147                    @    @                           4  08387
2148                    @    @                           4  08391
2149                    @   @,G                          3  08394
2150   *
2151   MRCW     SBR    MRCWX&5                          7  08396  G 08546 B
2152            CW     MRSW                             6  08403  ¤ 02043
2153            MLCA   ONXXX,SYS1&15    MOVE 4 ONES     12  08409  D 08556 01271 T
2154            BCE    FT,CHN1&2,1      TAPE ON CHN 1   12  08421  B 08445 01291 1
2155            MLCS   ON-1,SYS1&12     MOVE A BLANK    12  08433  D 08551 01268 3
2156   FT       BCE    GT,CHN2&2,1      TAPE ON CHN 2   12  08445  B 08469 01348 1
2157            MLCS   ON-1,SYS1&13     MOVE A BLANK    12  08457  D 08551 01269 3
2158   GT       BCE    HT,CHN3&2,1      TAPE ON CHN 3   12  08469  B 08493 01405 1
2159            MLCS   ON-1,SYS1&14     MOVE A BLANK    12  08481  D 08551 01270 3
2160   HT       BCE    IT,CHN4&2,1      TAPE ON CHN 4   12  08493  B 08517 01462 1
2161            MLCS   ON-1,SYS1&15     MOVE A BLANK    12  08505  D 08551 01271 3
2162   IT       MRCWG  CALT,01290                       12  08517  0 08557 01290 L
2163            MLCWS  OOP,OLINS&11                     12  08529  0 08850 01582 7
2164   MRCWX    B      0                                7  08541  J 00000
2165            DCW    @    @                           4  08551
2166   ON       DCW    @1@                              1  08552
2167   CNXXX    DCW    @1111@                           4  08556
2168   CALT     SBR    CHSTTR&5                         7  08557  G 01675 B
2169            MLNA   STARAD,SCAN&10                   12  08564  D 01681 01342 /
2170            SW     X11-4                            6  08576  , 00075
2171            S      X11                              6  08582  S 00079
2172            A      ONES,X11                        11  08588  A 01709 00079
```

```
PGLIN     LABEL     OPCOD   OPERAND                    CT  ADDRS  INSTRUCTION
2173                SCNLB   9999,0                     12  08599  D 09999 00000 -
2174                SBR     ADDHLD                      7  08611  G 01691 B
2175                A       ONES,ADDHLD                11  08618  A 01709 01691
2176                C       ADDHLD,STOPAD              11  08629  C 01691 01686
2177                BE      CHSTTR                      7  08640  J 01670 S
2178                MLNA    ADDHLD,MLC&5               12  08647  D 01691 01397 /
2179                MLCS    0,BCH&11                   12  08659  D 00000 01415 3
2180                BCE     CHINS,K1,7                 12  08671  B 01463 01703 7
2181                BCE                                 1  08683  B
2182                BCE                                 1  08684  B
2183                BCE     STINS                       6  08685  B 01540
2184                BCE                                 1  08691  B
2185                BCE                                 1  08692  B
2186                BCE                                 1  08693  B
2187                BCE     OLINS                       6  08694  B 01571
2188                S       ONES,ADDHLD                11  08700  S 01709 01691
2189                MLNA    ADDHLD,SCAN&10             12  08711  D 01691 01342 /
2190                B       SCAN                        7  08723  J 01332
2191                MLNA    ADDHLD,MLCX&10             12  08730  D 01691 01485 /
2192                MLCS    CHCODE,O&X11               12  08742  D 01692 00,MO 3
2193                A       THREES,ADDHLD              11  08754  A 01711 01691
2194                MLNA    ADDHLD,CTD&10              12  08765  D 01691 01520 /
2195                MLCS    TDNO,0                     12  08777  D 01708 00000 3
2196                S       THREES,ADDHLD              11  08789  S 01711 01691
2197                B       UPCAT                       7  08800  J 01433
2198                MLNA    ADDHLD,MLCH&10             12  08807  D 01691 01562 /
2199                MLCS    CHSTAT,0                   12  08819  D 01693 00000 3
2200                B       UPCAT                       7  08831  J 01433
2201                A       SIX,ADDHLD                 11  08838  A 01695 01691
2202                DCW     @M@                         1  08849
2203      DOP       DCW     @D@                         1  08850
2204                LTORG   *                              08851
2204                        @@@                         1  08851
2204                        @*@                         1  08852
2204                        @$@                         1  08853
2204                        @#@                         1  08854
2204                        @ @                         2  08856
```

```
PGLIN     LABEL     OPCOD  OPERAND                                  CT  ADORS  INSTRUCTION
2204                       @%@                                      1  08857
2204                       @¤@                                      1  08858
2204                       @M@                                      1  08859
2204                       @.@                                      1  08860
2204                       @UN@                                     2  08862
2204                       &1                                       1  08863
2204                       CH1                                      5  08868  01800
2204                       CH2                                      5  08873  01838
2204                       CH3                                      5  08878  01876
2204                       CH4                                      5  08883  01914
2204                       @0@                                      1  08884
2204                       &4                                       1  08885
2204                       @B@                                      1  08886
2204                       @ ODD@                                   4  08890
2204                       @U@                                      1  08891
2204                       @EVEN@                                   4  08895
2204                       @M@                                      1  08896
2204                       @MOVE@                                   4  08900
2204                       @L@                                      1  08901
2204                       @LOAD@                                   4  08905
2204                       PERR                                     5  08910  07352
2204                       ERROUT                                   5  08915  06907
2204                       @R@                                      1  08916
2204                       @1@                                      1  08917
2204                       @X@                                      1  08918
2204                       @2@                                      1  08919
2204                       @3@                                      1  08920
2204                       @4@                                      1  08921
2204                       @950@                                    3  08924
2204                       @DC@                                     2  08926
2204                       @20@                                     2  08928
2204                       &2                                       1  08929
2204                       &3                                       1  08930
2204                       @ @                                      1  08931
2204                       @6@                                      1  08932
2205      * ********   READ CONSTANTS   **********************
2206                ORG    8960                                        08960
2207                DC     @*@                                      1  08960
```

```
PGLIN  LABEL    OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
2208   RD1      DCW    RAREA1&954          ADDRESSES             5  08965  07954
2209   RD2               RAREA2&954           FOR               5  08970  08954
2210   RD3               RAREA3&954            RECORD           5  08975  16954
2211   RD4               RAREA4&954             CHANGE          5  08980  17954
2212   XXX               @0@                                     1  08981
2213   VVV               @000@                                   3  08984
2214   WWW               @00@                                    2  08986
2215   WKARID   DCW      @00@           RECORD ID WORK AREA      2  08988
2216   INDIC             @148AB@,G           TO RESET ERROR NSG  5  08993
2217            ORG      9000                                        09000
2218   * ************************************************
2219   *                RECORD PATTERN
2220   *     RECORD LENGTHS INCREASED FROM RIGHT TO LEFT
2221   * ************************************************
2222    PATRN   DCW      @  @,G                DRIVE IDENTIFICATION  2  09000
2223                     OC     @EFGHIJKLMNOPQRSTUVWXYZ0.$ * @       28  09030
2224                            @.¤BTM&$*B,L-/,%MSMY#@.TMABCD@       28  09058
2225                            @¤RHAQ$B/V,T-MZPMTQ.JFKTS,GBM@  RANDOM 28  09086
2226                            @,S%TMUSVMW&X#Y@Z.OTFMEAOBCMM@  CHARS 28  09114
2227                            @ G.H¤1B.TJMK&L$M*NBO,PLQ-R/*@ ALL   28  09142
2228                            @MMMMMTMMMMMBMMMMM.MMMMMGMMMM@       28  09170
2229                            @MLMMMMMM M M M M M MMMMMTMMM@       28  09198
2230                            @MMBMMMMM.MMMMMGMMMMMLMMMMMMM@       28  09226
2231                            @VVVVVVV.......VVVVVVV.......@       28  09254
2232                            @V.V.V.V.V.V.V.V.V.V.V.V.V.V.@       28  09282
2233                            @1 1 1 1 1 1 1 1 1 1 1 1 1 1 @ SINGLE 28  09310
2234                     DC     @1 @                                  2  09312
2235                     DC     @M..MM.M..MM.MBBMMBMBBMMBMTTMMTMTTMMT@ 36  09348
2236                            @MMMMMMMMMMMMLLMMLMLLMMLMGGMMGMGGMMG@ 36  09384
2237                            @M.....M.....MBBBBBMBBBBBMTTTTTMTTTTT@ 36  09420
2238                            @MMMMMMMMMMMMLLLLLMLLLLLMGGGGGMGGGGG@ 36  09456
2239                            @M..MM.M..MM.MBBMMBMBBMMBMTTMMTMTTMMT@ 36  09492
2240                            @MMMMMMMMMMMMLLMMLMLLMMLMGGMMGMGGMMG@ 36  09528
2241                            @M.....M.....MBBBBBMBBBBBMTTTTTMTTTTT@ 36  09564
2242                            @MMMMMMMMMMMMLLLLLMLLLLLMGGGGGMGGGGG@ 36  09600
2243                            @M..MM.M..MM.MBBMMBMBBMMBMTTMMTMTTMMT@ 36  09636
2244                            @MMMMMMMMMMMMLLMMLMLLMMLMGGMMGMGGMMG@ 36  09672
```

```
PGLIN     LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
2245                DC     @XX@                                              2  09674
2246                       @RSNOV.URSNOV.U1K49SM81K49SM8@                   28  09702
2247                       @ICPMMT¤ICPMMT¤B.GLMMTB.GLMMT@                   28  09730
2248                       @J37T%H&J37T%H&AL7M,¤HAL7M,¤H@                   28  09758
2249                       @1 1 1 1 1 1 1 J25OUQ J25OUQ @                   28  09786
2250                       @1248Y- 1248&- 136@Y&-136@Y&-@                   28  09814
2251                       @RSNOV.URSNOV.U1K49SM81K49SM8@                   28  09842
2252                       @ICPPMT¤ICPMMT¤B.GLMMTB.GLMMT@                   28  09870
2253                       @J3TT%H&J3TT%H&AL7M,¤HAL7M,¤H@    RECS           28  09898
2254                       @1 1 1 1 1 1 1 J25OUQ J25OUQ @    SHORT          28  09926
2255                       @1248Y- 1248&- 136@Y&-136@Y&-@                   28  09954
2256      ZRE       DCW    @0000@,G                                          4  09958
2257      *
2258      *     RECORD LENGTHS INCREASED FROM RIGHT TO LEFT
2259      *     1 ST. 100 RECORDS ARE-  6@Y&-
2260      *     2 ND. 100 RECORDS ARE-  Y@-136@Y&-
2261                ORG    9960                                                09960
2262      CHOP      DCW    @%¤M.@*$#@          CHANNEL CODES                 8  09960
2263      TANB              @RX31RX31@                                        8  09968
2264      BLK       DCW    @        @          BLANKS                        8  09976
2265                       @0000 @              FOR ERROR                    5  09988
2266                       @0000 @                TABLE                      5  09993
2267                       @0000@,G                                          4  09997
2268      * ************************************************
2269                LTORG  *                                                   09999
2270                EX     ZZZ1                                                      J08232
2271                ORG    2000                                                02000
```

```
PGLIN     LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION

2273                 ORG    1000                                                 01000
2274      * ***************************************************
2275      * STANDARD TADS
2276      * ***************************************************
2277      *                          -- NOT 1 --        -- 1 --
2278                 DC     a a    TYPE ERROR           NO ERROR TYPE          1  01000
2279      *                                           ON EACH DATA CHK
2280      *                                           AND COMP ERROR
2281                        a a    NO LOOPS             LOOP                   1  01001
2282                        a a    NO ERROR HALTS       HALT ON ERROR          1  01002
2283                        a a    1 WR OR RD PASS      REPEAT PASS            1  01003
2284      *SPECIAL TADS  ***
2285                        a a    USE OVERLAP          DONT USE OLAP          1  01004
2286                        a a    ODD PARITY           EVEN PARITY            1  01005
2287                        a a    MOVE MODE            LOAD MODE              1  01006
2288                 DCW    aGMa                                               1  01007
2289                 DCW    a100a  NO. OF REPEATS EACH REC LENGTH.             3  01010
2290      *                        MULTIPLY BY 20 FOR TOTAL NO.
2291      *                        OF RECORDS TO BE WRITTEN.
2292      * ***************************************************
2293      * PROGRAM ALTER ROUTINE
2294      * ***************************************************
2295                 ORG    1011                                                 01011
2296                 SBR    ITREXT&5             STORE BAR FOR RETURN            7  01011  G 01085 BG
2297                 BAI    *&1                                                  7  01018  R 01025 M
2298                 RCP    ITR2&4               ENTER LOC OF ALTER              10 01025  M %TO 01060 RT
2299                 BEX1   ITR1.MT         BR ANY BUT WLR OR N.T.              7  01035  R 01025 MS
2300                 BNT1   ITREXT          BR N.T.                             7  01042  R 01080 BG
2301                 BAI    ITR2                 RESET I/O INTERLOCK             7  01049  R 01056 M
2302                 RCPW   0                    ENTER DATA                      10 01056  L %TO 00000 RS
2303                 BEX1   ITR2.MS               BR ANY BUT WLR                  7  01066  R 01056 MG
2304                 BAI    *&1                  BRANCH ANY                      7  01073  R 01080 M
2305                 B      0                    RETURN TO PROGRAM               7  01080  J 00000
2306      * ***************************************************
2307      * STANDARD TYPE ROUTINE 1
2308      * ***************************************************
2309                 SBR    TYP2&5               STORE MESSAGE ADDRESS           7  01087  G 01113 B
2310                 SBR    TYP3&8               DITTO                           7  01094  G 01135 B
```

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PGLIN     LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
2311                BAI    *&1                                       7  01101  R 01108 G M
2312                SCNRG  0,0                 FIND RETURN ADDRESS  12  01108  0 00000 00000 Q
2313                SAR    TYP4&5              SET RETURN ADDRESS    7  01120  G 01156 A
2314                WCP    0                   TYPE MESSAGE         10  01127  M %T0 00000 W
2315                BCBI   TYP3                BRANCH ON BUSY        7  01137  R 01127 2 G
2316                BAI    *&1                 RESET INTERLOCK       7  01144  R 01151 M
2317                B      0                   RETURN TO PROGRAM     7  01151  J 00000
2318      * ********************************************************
2319      *              CONSTANTS
2320      * ********************************************************
2321                DCW    CH1-4               ERROR                 5  01162  01796
2322                       CH2-4                                     5  01167  01834
2323                       CH3-4                                     5  01172  01872
2324                       CH4-4                                     5  01177  01910
2325      * *********   READ CONSTANTS   **********************
2326                DCW    RD11&16             PERM                  5  01182  02905
2327                       RD21&16              ERROR                5  01187  03112
2328                       RD31&16               COUNT               5  01192  03319
2329                       RD41&16                ADDRESSES          5  01197  03526
2330                       RD11&21             COMP                  5  01202  02910
2331                       RD21&21              ERROR                5  01207  03117
2332                DCW    RD31&21               COUNT               5  01212  03324
2333                       RD41&21                ADDRESSES          5  01217  03531
2334                       000                                       3  01220
2335                DCW    00                                        2  01222
2336                DCW    @      @                                  5  01227
2337                       @ @                                       1  01228
2338                       @ @                                       1  01229
2339      * ********************************************************
2340      *     DEFINE CONTROL CARDS
2341      * ********************************************************
2342                ORG    1245                                         01245
2343      *                          IF WORD SEPARATOR THIS
2344      *                          PROGRAM HAS
2345                DC     @20601@       SEQUENCE NO. AND TOP MEM ADDRESS  5  01249
2346      * ********************************************************
2347      * TEST NUMBER AND SUFFIX
2348      * ********************************************************
```

```
PGLIN     LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
2349                 ORG    1250                                                 01250
2350                 DCW    @T021@                                           4   01253
2351                 DC     @C@,G                                            1   01254
2352      * ************************************************
2353      * STANDARD SYSTEM CONTROL CARD
2354      * ************************************************
2355                 ORG    1256     CHARACTER & PURPOSE          COL             01256
2356                 DC     @ @  ALPHA O,I,X - 1410,1410ACC,7010  13      1   01256
2357           &1    DC     @ @  0,1,3,5,7,9-10,20,40,60,80,100K  14      1   01257
2358           &2    DC     @ @              SPARE                15      1   01258
2359           &3    DC     @ @  1,2-CHNL1 100,132 CHAR PRINTER   16      1   01259
2360           &4    DC     @ @  1,2-CHNL2 100,132 CHAR PRINTER   17      1   01260
2361           &6    DC     @  @             SPARES               18-19   2   01262
2362           &7    DC     @ @  1 - OVERLAP                      20      1   01263
2363           &8    DC     @ @  1 - PRIORITY ALERT               21      1   01264
2364          &11    DC     @   @            SPARES               22-24   3   01267
2365          &12    DC     @ @  1 - CHANNEL ONE PRESENT          25      1   01268
2366          &13    DC     @ @  1 - CHANNEL TWO PRESENT          26      1   01269
2367          &14    DC     @ @  1 - CHANNEL THREE PRESENT        27      1   01270
2368          &15    DC     @ @  1 - CHANNEL FOUR PRESENT         28      1   01271
2369          &19    DC     @    @           SPARES               29-32   4   01275
2370          &20    DC     @ @  1 - REAL TIME CLOCK              33      1   01276
2371          &31    DC     @          @     SPARES               34-44   11  01287
2372          &32    DC     @+@                                   45      1   01288
2373      * ************************************************
2374      *       CHANNEL ALTER ROUTINE
2375      * ************************************************
2376                 ORG    1290                                                 01290
2377                 SBR    CHSTTR&5                                         7   01290  G 01675 B
2378                 MLNA   STARAD,SCAN&10                                   12  01297  D 01681 01342 /
2379                 SW     X11-4                                            6   01309  , 00075
2380                 S      X11                                              6   01315  S 00079
2381                 A      ONES,X11                                         11  01321  A 01709 00079
2382                 SCNLB  9999,0                                           12  01332  D 09999 00000 -
2383                 SBR    ADDHLD                                           7   01344  G 01691 B
2384                 A      ONES,ADDHLD                                      11  01351  A 01709 01691
2385                 C      ADDHLD,STOPAD                                    11  01362  C 01691 01686
2386                 BE     CHSTTR                                           7   01373  J 01670 S
```

```
PGLIN     LABEL .   OPCOD  OPERAND                    CT  ADDRS  INSTRUCTION
2387                MLNA    ADDHLD,MLC&5               12  01380  D 01691 01397 /
2388                MLCS    0,BCH&11                   12  01392  D 00000 01415 3
2389                BCE     CHINS,K1,7                 12  01404  B 01463 01703 7
2390                BCE                                 1  01416  B
2391                BCE                                 1  01417  B
2392                BCE     STINS                       6  01418  B 01540
2393                BCE                                 1  01424  B
2394                BCE                                 1  01425  B
2395                BCE                                 1  01426  B
2396                BCE     OLINS                       6  01427  B 01571
2397                S       ONES,ADDHLD                11  01433  S 01709 01691
2398                MLNA    ADDHLD,SCAN&10             12  01444  D 01691 01342 /
2399                B       SCAN                        7  01456  J 01332
2400                MLNA    ADDHLD,MLCX&10             12  01463  D 01691 01485 /
2401                MLCS    CHCODE,0&X11               12  01475  D 01692 00.M0 3
2402                A       THREES,ADDHLD              11  01487  A 01711 01691
2403                MLNA    ADDHLD,CTD&10              12  01498  D 01691 01520 /
2404                MLCS    TDNO,0                     12  01510  D 01708 00000 3
2405                S       THREES,ADDHLD              11  01522  S 01711 01691
2406                B       UPDAT                       7  01533  J 01433
2407                MLNA    ADDHLD,MLCH&10             12  01540  D 01691 01562 /
2408                MLCS    CHSTAT,0                   12  01552  D 01693 00000 3
2409                B       UPDAT                       7  01564  J 01433
2410                A       SIX,ADDHLD                 11  01571  A 01695 01691
2411                MLNA    ADDHLD,MLCO&5              12  01582  D 01691 01599 /
2412                MLCS    0,BCS&11                   12  01594  D 00000 01617 3
2413                BCE     SETOL,K2,1                 12  01606  B 01628 01707 1
2414                BCE                                 1  01618  B
2415                BCE                                 1  01619  B
2416                BCE                                 1  01620  B
2417                B       REDUCE                      7  01621  J 01652
2418                MLNA    ADDHLD,MLCL&10             12  01628  D 01691 01650 /
2419                MLCS    BDLOM,0                    12  01640  D 01694 00000 3
2420                S       SIX,ADDHLD                 11  01652  S 01695 01691
2421                B       UPDAT                       7  01663  J 01433
2422                B       0                           7  01670  J 00000
2423                DCW     PERR                        5  01681  07352
2424                DCW     ERRDUT                      5  01686  06907
```

```
PGLIN     LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
2425                DCW    00000                                    5  01691
2426                       0                                        1  01692
2427                       0                                        1  01693
2428                       1                                        1  01694
2429                       6                                        1  01695
243D                DCW    @J13XRULM@                               8  017D3
2431                       @4321@                                   4  017D7
2432                       @ @                                      1  D1708
2433                       1                                        1  D1709
2434                DCW    @2@                                      1  D1710
2435                       3                                        1  01711
2436                DCW    @J@                                      1  01712
2437                DC     START                                    5  D1717  020D0
2438                DC     @ @                                      1  01718
2439                H                          END BRANCH INST.     1  01719  .
244D                DCW    @+@                                      1  D172D
2441                ORG    1800                                        D1800
2442                DA     1X37,G              READY TABLE AREA        01800
2443                DA     1X37,G              READY TABLE AREA        01838
2444                DA     1X37,G              READY TABLE AREA        01876
2445                DA     1X37,G              READY TABLE AREA        D1914
2446                DC     @+@                                      1  01952
2447      * *********   READ CONSTANTS   **********************
2448                DCW    &REWDND                                  5  D1957  05390
2449                DCW    DD4DO                                    5  01962
245D                DCW    RD11&11             TEMP                 5  01967  02900
2451                       RD21&11              ERROR               5  D1972  03107
2452                       RD31&11               COUNT              5  01977  03314
2453                       RD41&11                ADDRESSES         5  01982  D3521
2454      NN        DCW    @N@                                      1  01983
2455      * ************************************************************
2456      * *********   READ CONSTANTS   **********************
2457                ORG    896D                                        D8960
2458                DC     @+@                                      1  08960
2459                DCW    RAREA1&954          ADDRESSES            5  08965  07954
2460                       RAREA2&954           FOR                 5  D8970  D8954
2461                       RAREA3&954            RECORD             5  D8975  16954
2462                       RAREA4&954             CHANGE            5  0898D  17954
```

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PGLIN     LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
2463                       @0@                                               1  08981
2464                       @000@                                             3  08984
2465                       @00@                                              2  08986
2466                DCW    @00@           RECORD ID WORK AREA                2  08988
2467                       @148AB@,G            TO RESET ERROR NSG           5  08993
2468                ORG    9000                                                 09000
2469      * ****************************************************
2470      *              RECORD PATTERN
2471      *     RECORD LENGTHS INCREASED FROM RIGHT TO LEFT
2472      * ****************************************************
2473                DCW    @  @,G                DRIVE IDENTIFICATION       2  09001
2474                DC     @EFGHIJKLMNOPQRSTUVWXYZ0.¢ ¢ @                   28  09030
                             LLG   R.D    GBS   .GQ
2475                       @.¤BTM£$¤B,L-/,%MSMY¢@.TMABCD@                   28  09058
                               R     G  SG.    LB.   G
2476                       @¤RHAQ¢B/V,T-MZPMTQ.JFKTS.GBM@    RANDOM         28  09086
                             G B S         . G Q     GG
2477                       @.S%TMUSVMW£X¢Y@Z.DTFMEADBCMM@   CHARS           28  09114
                                 L,L G         R . D
2478                       @ G.H¤1B.TJMK£L$M¤NBO,PLQ-R/¢@ ALL                28  09142
                            GGGGGLGGGGGLGGGGG GGGGG GGGG
2479                       @MMMMMTMMMMMBMMMMM.MMMMMGMMMM@                    28  09170
                            GDGGGGGS G G G G G GGGGGLGGG
2480                       @MLMMMMMM M M M M M MMMMMTMMM@                    28  09198
                            GGLGGGGG GGGGG GGGGGDGGGGGSG
2481                       @MMBMMMMM.MMMMMGMMMMMLMMMMMMM@                   28  09226
2482                       @VVVVVVVV'.......VVVVVVV'.......@                 28  09254
2483                       @V.'.V.'.V.'.V.'.V.'.V.'.V.'.V.'.V.'.V.'.V.'.@   28  09282
2484                       @1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 @ SINGLE         28  09310
2485                DC     @1 @                                              2  09312
                            G  GG G  GG GLLGGLGLLGGLGLLGGLGLLGGL
2486                DC     @M..MM.M..MM.MBBMMBMBBMMBMTTMMTMTTMMT@            36  09348
                            GSSGGSGSSGGSGDDGGDGDDGGDG  GG G  GG
2487                       @MMMMMMMMMMMMMLLMMLMLLMMLMGGMMGMGGMMG@            36  09384
                            G     G      GLLLLLGLLLLLGLLLLLGLLLLL
2488                       @M.....M.....MBBBBBMBBBBBMTTTTTMTTTTT@            36  09420
                            GSSSSSGSSSSSGDDDDDGDDDDDG     G
2489                       @MMMMMMMMMMMMMLLLLLMLLLLLMGGGGGMGGGGG@            36  09456
                            G  GG G  GG GLLGGLGLLGGLGLLGGLGLLGGL
2490                       @M..MM.M..MM.MBBMMBMBBMMBMTTMMTMTTMMT@            36  09492
                            GSSGGSGSSGGSGDDGGDGDDGGDG  GG G  GG
2491                       @MMMMMMMMMMMMMLLMMLMLLMMLMGGMMGMGGMMG@            36  09528
                            G     G      GLLLLLGLLLLLGLLLLLGLLLLL
2492                       @M.....M.....MBBBBBMBBBBBMTTTTTMTTTTT@            36  09564
                            GSSSSSGSSSSSGDDDDDGDDDDDG     G
2493                       @MMMMMMMMMMMMMLLLLLMLLLLLMGGGGGMGGGGG@            36  09600
                            G  GG G  GG GLLGGLGLLGGLGLLGGLGLLGGL
2494                       @M..MM.M..MM.MBBMMBMBBMMBMTTMMTMTTMMT@            36  09636
                            GSSGGSGSSGGSGDDGGDGDDGGDG  GG G  GG
2495                       @MMMMMMMMMMMMMLLMMLMLLMMLMGGMMGMGGMMG@            36  09672
2496                DC     @XX@                                              2  09674
2497                       @RSNOV.URSNOV.U1K49SM81K49SM8@                    28  09702
                              TSL    TSL L  DSGLL  DSGL
2498                       @1CPMMT¤1CPMMT¤8.GLMMTB.GLMMT@                    28  09730
                            G      G     T     T
2499                       @J37T%H£J37T%H£AL7M,¤4AL7M,¤H@                    28  09758
```

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PGLIN    LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
2500                      @1 1 1 1 1 1 1 J25OUQ J25OUQ @                   28  09786
2501                      @1248Y- 1248&- 136@Y&-136@Y&-@                   28  09814
2502                      @RSNOV.URSNOV.U1K49SM81K49SM8@                   28  09842
2503                      @ICPPMT¤ICPMMT¤B.GLMMTB.GLMMT@                   28  09870
2504                      @J3TT%H&J3TT%H&AL7M,¤HAL7M,¤H@   RECS            28  09898
2505                      @1 1 1 1 1 1 1 J25DUQ J25DUQ @   SHDRT           28  09926
2506                      @1248Y- 1248&- 136@Y&-136@Y&-@                   28  09954
2507                DCW   @0000@,G                                          4  09958
2508          *
2509          *     RECORD LENGTHS INCREASED FROM RIGHT TO LEFT
2510          *     1 ST. 100 RECORDS ARE-  6@Y&-
2511          *     2 ND. 100 RECORDS ARE-  Y@-136@Y&-
2512                ORG   9960                                                    09960
2513                DCW   @%¤M.@*$#@          CHANNEL CODES                   8  09967
2514                      @RX31RX31@                                          8  09975
2515                DCW   @         @          BLANKS                         8  09983
2516                      @0000 @             FOR ERROR                      5  09988
2517                      @0000 @               TABLE                        5  09993
2518                      @0000@,G                                           4  09997
2519          * ****************************************************
2520          RAREA1    EQU   7000       CHANNEL 1 READ AREA
2521          RAREA2    EQU   8000       CHANNEL 2 READ AREA
2522          RAREA3    EQU   16000      CHANNEL 3 READ AREA
2523          RAREA4    EQU   17000      CHANNEL 4 READ AREA
2524                    ORG   2000                                                02000
2525                    NOPWM                                                 1  02000  N
2526          RESTRT    B     REWOND   BR AFTER FIRST TIME TO RESTART          7  02001  J 05390
2527                    SW    RESTRT             SET BRANCH FOR RESTART       6  02008  * 02001
2528                    MRCWG 10,CH1             REPLACE RDY TBL             12  02014  D 00010 01800 0 L
2529                    MRCWG 170,1000           REPLACE TADS                12  02026  D 00170 01000 0 L
2530                    BNQ   ITR                                             7  02038  J 01011 Q
2531          * ****************************************************
2532          *              READ INITALIZATION
2533          * ****************************************************
2534          * **  INITALIZE  DOO-EVEN PARITY, MDVE-LDAO MODE  ****
2535                    BCE   EPARY,TAD5,1       BR IF DDD PARITY            12  02045  B 02112 01005 1
2536                    MLCS  @B@,READ1&2        ODD PARITY CODES            12  02057  D 01722 04311 3
2537                    MLCS  @B@,READ2&2        DOO PARITY CODES            12  02069  D 01722 04843 3
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PGLIN     LABEL     OPCOD   OPERAND                          CT  ADDRS  INSTRUCTION
2538                MLCS    @B@,READ3&2                      12  02081  D 01722 07435 3
2539                MLCS    @B@,READ4&2                      12  02093  D 01722 07977 3
2540                B       RMODE                             7  02105  J 02160
2541      EPARY     MLCS    @U@,READ1&2      EVEN PARITY CODES 12  02112  D 01723 04311 3
2542                MLCS    @U@,READ2&2      EVEN PARITY CODES 12  02124  D 01723 04843 3
2543                MLCS    @U@,READ3&2                      12  02136  D 01723 07435 3
2544                MLCS    @U@,READ4&2                      12  02148  D 01723 07977 3
2545      RMODE     BCE     LMRD,TAD6,1      BR IF LOAD MODE  12  02160  B 02227 01006 1
2546                MLCS    @M@,READ1        MOVE MODE CODES  12  02172  D 01724 04309 3
2547                MLCS    @M@,READ2        MOVE MODE CODES  12  02184  D 01724 04841 3
2548                MLCS    @M@,READ3                         12  02196  D 01724 07433 3
2549                MLCS    @M@,READ4                         12  02208  D 01724 07975 3
2550                B       OUTLM                             7  02220  J 02275
2551      LMRD      MLCS    @L@,READ1        LOAD MODE CODES  12  02227  D 01725 04309 3
2552                MLCS    @L@,READ2        LOAD MODE CODES  12  02239  D 01725 04841 3
2553                MLCS    @L@,READ3                         12  02251  D 01725 07433 3
2554                MLCS    @L@,READ4                         12  02263  D 01725 07975 3
2555      OUTLM     MLNA    &RETR2,STARAD    CH ALTER-START ADDRS 12 02275  D 01730 01681 /
2556                MLNA    &RDERRT,STOPAD          -STOP ADRS 12  02287  D 01735 01686 /
2557                CS      99               CLEAR INDEX REGS  6  02299  / 00099
2558                MRCWM   RESTW,1   MOVE RESTART BR TO LOC 1 12  02305  D 01712 00001 GM
2559                CW      CH1R,CH2R        INITALIZE         11  02317  ¤ 03884 04416
2560                BBE     *&7,CH1&4,GM     LOOK FOR CHNLS THAT 12 02328  W 02346 01804 GM
2561                SW      CH1R             HAVE NO RDY DRIVES 6  02340  , 03884
2562                BBE     *&7,CH2&4,GM     SET SWITCHES TO   12  02346  W 02364 01842 GM
2563                SW      CH2R,            BYPASS CHANNEL    6  02358  , 04416
2564      MOVRUT    BCE     *&32,SYS1,X      IF 7010           12  02364  B 02407 01256 X
2565                MLCWS   NN,IS7010        NOP               12  02376  D 01983 04947 7
2566                MLCWS   NN,IS7010&12     NOP               12  02388  D 01983 04959 7
2567      B         B       RDHSKP           BR IF NOT A 7010  7  02400  J 02466
2568                MRCWR   7000,13000       MOVE CH 3&4 READ  12  02407  D 07000 13000 SM
2569      *                                  ROUTINES TO 13000
2570      *                                  IF 7010 COMPUTER
2571                CW      CH3R&1,CH4R&1    MARK              11  02419  ¤ 13001 13543
2572                BBE     *&7,CH3&4,GM     CHANNELS OUT THAT 12  02430  W 02448 01880 GM
2573                SW      CH3R&1              HAVE NO        6  02442  , 13001
2574                BBE     *&7,CH4&4,GM     READY DRIVES      12  02448  W 02466 01918 GM
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PGLIN     LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
2575                SW     CH4R&1                                    6  02460  , 13543
2576      * ***************************************************
2577      *  *******    RESTART READ PASS HERE    *************
2578      ***************************************************
2579      ROHSKP    CW     SWC1,SWC2          INITALIZE             11  02466  ¤ 04199 04731
2580                CW     SW17R,SW27R         SWITCHES FOR         11  02477  ¤ 04186 04718
2581                CW     SW12R,SW22R          CH 1 & 2            11  02488  ¤ 04148 04680
2582                S      ZRER                                      6  02499  S 06965
2583                BCE    *&8,SYS1,X                               12  02505  B 02524 01256 X
2584                B      NO34                                      7  02517  J 02557
2585                CW     SWC3,SWC4          INITALIZE             11  02524  ¤ 13323 13865
2586                CW     SW37R,SW47R         SWITCHES FOR         11  02535  ¤ 13310 13852
2587                CW     SW32R,SW42R          CH 3 & 4            11  02546  ¤ 13272 13814
2588      NO34      CW     SWU1               REC UPDATE SW         6  02557  ¤ 05024
2589                BCE    NOLAPR,TAD4,1      BR-NOT USING OLAP    12  02563  B 02690 01004 1
2590                BCE    *&8,SYS1&7,1       BR IF OLAP AVAIL     12  02575  B 02594 01263 1
2591                B      NOLAPR                                    7  02587  J 02690
2592      OLAR      SW     BOLR1,BOLR2        SWITCHES TO USE       11  02594  , 04320 04852
2593                MLCS   @@@,READ1&1        DATA MOVE            12  02605  D 01736 04310 3
2594                MLCS   @*@,READ2&1         OVERLAP             12  02617  D 01737 04842 3
2595                BCE    *&8,SYS1,X         BR IF 7010           12  02629  B 02648 01256 X
2596                B      INCRD                                     7  02641  J 02823
2597                MLCS   @$@,READ3Z&1       OVERLAP              12  02648  D 01738 13434 3
2598                MLCS   @#@,READ4Z&1                            12  02660  D 01739 13976 3
2599                SW     BDLR3,BOLR4         BDL INSTS.           11  02672  , 13444 13986
2600                B      INCRD                                     7  02683  J 02823
2601      NOLAPR    MLCS   @%@,READ1&1        DATA MOVE            12  02690  D 01740 04310 3
2602                MLCS   @¤@,READ2&1         NON-OVERLAP         12  02702  D 01741 04842 3
2603                CW     BDLR1,BOLR2        CLEAR                11  02714  ¤ 04320 04852
2604                CW     SRD1,LOOPR1-7     NO-OP BOL INST        11  02725  ¤ 03938 04295
2605                CW     SRD2,LOOPR2-7     NO-OP BOL INST        11  02736  ¤ 04470 04827
2606                BCE    *&8,SYS1,X         BR IF 7010           12  02747  B 02766 01256 X
2607                B      INCRD                                     7  02759  J 02823
2608                MLCS   @M@,READ3Z&1       UNOVERLAP            12  02766  D 01742 13434 3
2609                MLCS   @.@,READ4Z&1                            12  02778  D 01743 13976 3
2610                CW     BOLR3,BOLR4         SWITCHES             11  02790  ¤ 13444 13986
2611                CW     I3R2,SL3          NO-OP BOL INST         11  02801  ¤ 13055 13419
2612                CW     I4R1,SL4          NO-OP BOL INST         11  02812  ¤ 13597 13961
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PGLIN  LABEL    OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
2613   INQRD    BNQ    ITR                 INQUIRY               7  02823  J 01011 Q
2614            SW     X9-4,X15-4                               11  02830  , 00065 00095
2615            S      X15                                       6  02841  S 00099
2616            SW     X1-4,X14-4                               11  02847  , 00025 00090
2617            ZA     &2,X14   INITALIZE FOR IDENT. RECORD     11  02858  M 01744 00094 Q
2618            MLNA   RESTR,6  MOVE RESTART ADDRESS TO LOC 1   12  02869  D 01957 00006 /
2619            B      BLKRT                ARND ERROR AREAS     7  02881  J 03717
2620            H                                                1  02888  .
2621   * ************************************************
2622   *              ERROR COUNT AREA
2623   * ************************************************
2624   RD11     DA     1X207                CH 1  *                 02889
2625   RD21     DA     1X207                CH 2  *                 03096
2626   RD31     DA     1X207                CH 3  *                 03303
2627   RD41     DA     1X207                CH 4  *                 03510
2628   BLKRT    S      X9                   ZERO X9                 6  03717  S 00069
2629            ZA     @36@,MMM             NO OF MOVES TO CNTR    11  03723  M 01746 01222 Q
2630   MOVBLK   MRCWG  BLK,RD11&X9          MOVE BLANKS WITH       12  03734  D 09976 02QY9 D L
2631            MLCWS  WMGM,RD11&22&X9       WMGM TO STOP D/M       12  03746  D 01007 02R/1 7
2632            A      &23,X9                WMKS TO ERROR          11  03758  A 01748 00069
2633            S      @1@,MMM                 COUNT AREA           11  03769  S 01749 01222
2634            BZ     *&8                  BR AFTER 36TH. PASS     7  03780  J 03794 V
2635            B      MOVBLK                                       7  03787  J 03734
2636   * ************************************************
2637   *              READ TAPE ROUTINE
2638   * ************************************************
2639   RROUT    SW     ZERO&4                                       6  03794  , 01227
2640            SW                                                  1  03800  ,
2641            SW                                                  1  03801  ,
2642            SW                                                  1  03802  ,
2643            SW     SW13R,SW23R          COMP ROUT SWITCH       11  03803  , 03930 04462
2644            BCE    *&8,SYS1,X           BR IF A 7010           12  03814  B 03833 01256 X
2645            B      *&12                                         7  03826  J 03844
2646            SW     SW33R,SW43R          COMP ROUT SWITCH       11  03833  , 13047 13589
2647            S      X1                   ZERO X1                 6  03844  S 00029
2648            ZS     @46@,X15                                    11  03850  . 01751 00099
2649   UPREAD   A      &4,X1                STEP BR NO             11  03861  A 01752 00029
2650            A      @23@,X15                                    11  03872  A 01754 00099
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PGLIN     LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
2651      * ********************************************************
2652      *                 CHANNEL ONE READ
2653      * ********************************************************
2654                NOPWM                                            1  03883  N
2655      CH1R      B      *&8                 BR IF NO READY        7  03884  J 03898
2656                B      SW13R-13             DRIVES  CH 1         7  03891  J 03917
2657      PS11R     CW     ZERO&1              MARK CH FINISHED      6  03898  ¤ 01224
2658                SW     SW13R               SET BR ARND COMP      6  03904  , 03930
2659                B      CH2R-1              BR NEXT CH            7  03910  J 04415
2660                BW     SWC1&7,CH1-4&X1     BR- ORV OUT OF TEST  12  03917  V 04206 017Z6 1
2661                NOPWM                                            1  03929  N
2662      SW13R     B      SWC1&7              BR FIRST TIME         7  03930  J 04206
2663                NOP                        SWITCH                1  03937  N
2664      SRD1      BOL1   *-6                                       7  03938  J 03938 1
2665                BA1    *&8                 BR ON ANU ERROR       7  03945  R 03959 GM
2666                B      NOERR1              BR IF NO ERRORS       7  03952  J 04081
2667                MLCS   READ1&3,MSGEX&15    OR AND CH NO         12  03959  D 04312 06553 3
2668                MLCS   @1@                 -TO ERROR MSG         6  03971  D 01749
2669                MLCS   READ1&1,CHCODE      SET UP               12  03977  D 04310 01692 3
2670                MLCS   @R@,CHSTAT           CH ALTER            12  03989  D 01755 01693 3
2671                MLCS   READ1&3,TCNO          ROUTINE             12  04001  D 04312 01708 3
2672                MLNA   C1,ORFINR&5         ERROR ROUTINE        12  04013  0 01162 06634 /
2673                MLNA   TM1,TEMPR&10         ADDRESSES FOR       12  04025  D 01967 06692 /
2674                MLNA   PM1,PERMR&10          CH ONE             12  04037  0 01182 06756 /
2675                MLNA   @06999@,MZM&5                            12  04049  D 01760 06946 /
2676                SW     SW15R               RE-READ SWITCH        6  04061  , 04408
2677                B      ROERRT              BR- ERROR ROUTINE     7  04067  J 06384
2678                B      CLR1                BR TO READ            7  04074  J 04261
2679      NOERR1    MLNA   RD1,CMPREC&5        COMPARE ROUT         12  04081  0 08965 05802 /
2680                MLNA   CP1,CMPCNT&10         ADDRESSES          12  04093  0 01202 05825 /
2681                MLCS   READ1&3,CMSG&15                          12  04105  0 04312 05860 3
2682                MLCS   @1@                                       6  04117  D 01749
2683                MLCS   @1@,LMMSG           CH NO TO LM CHK MSG  12  04123  D 01749 06872 3
2684                MLCS   @0@,XXX             ZERO ERROR COUNT     12  04135  D 01761 08981 3
2685                NOP                        SWITCH ARND           1  04147  N
2686      SW12R     B      SW17R-1             IDENT MOVES           7  04148  J 04185
2687                MLCB   RAREA1&1,RD11&1&X15                      12  04155  D 07001 02HI0 L
2688                MLCS   READ1&3,RD11&5&X15                       12  04167  0 04312 02HI4 3
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PGLIN     LABEL     OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
2689                MLCS   @1@                               6  04179  D 01749
2690                NOP              LOAD MODE CHECK SWITCH   1  04185  N
2691      SW17R     BCE    CHKLM,TAD6,1     BR TO LM CHK ROUT 12  04186  B 06764 01006 1
2692                NOP                      SWITCH ARND       1  04198  N
2693      SWC1      B      CMPRUT           BR TO COMPARE ROUT  7  04199  J 05790
2694                CW     SW13R                              6  04206  ¤ 03930
2695      XXXR1     BCE    PS11R,CH1&X1,    BR-ALL DRVS READ 12  04212  B 03898 018#0
2696                BW     CH2R-1,CH1&X1      -DRV OUT OF TEST 12  04224  V 04415 018#0 1
2697                MLCS   CH1&X1,READ1&3    MOVE DR NO       12  04236  D 018#0 04312 3
2698      INQ1      BNQ    ITR              INQUIRY REQUEST    7  04248  J 01011 Q
2699                CW     SW15R            DONT RE-READ       6  04255  ¤ 04408
2700      CLR1      CS     RAREA1&954       CLEAR READ AREA    6  04261  / 07954
2701                CS                            **           1  04267  /
2702                CS                            **           1  04268  /
2703                CS                            **           1  04269  /
2704                CS                            **           1  04270  /
2705                CS                            **           1  04271  /
2706                CS                            **           1  04272  /
2707                CS                            **           1  04273  /
2708                CS                             **          1  04274  /
2709                CS                            **           1  04275  /
2710                MLCWS  WMGM,RAREA1&X14  DEFINE RECORD LENGTH 12  04276  D 01007 07M.0 7
2711                SW     RAREA1                   *           6  04288  . 07000
2712                NOP                      SWITCH             1  04294  N
2713                BOL1   *-6              WAIT FI SCOPE LOOP  7  04295  J 04295 1
2714      LOOPR1    BA1    *&1                                  7  04302  R 04309 M
2715      READ1     RTB    11,RAREA1        READ TAPE          10  04309  M &B1 07000 R
2716                NOPWM                                      1  04319  N
2717      BOLR1     BOL1   OLOK1            BR- OVERLAP        7  04320  J 04395 1
2718                BCB1   READ1            BR- BUSY           7  04327  R 04309 2
2719                BNR1   CH2R-1           DONT CHK OLAP IF NR 7  04334  R 04415 1
2720                BCE    OLOK1,TAD4,1     BR IF NOT USING OLAP 12  04341  B 04395 01004 1
2721                BCE    *&8,SYS1&7,1     BR-IF OLAP AVIAL   12  04353  B 04372 01263 1
2722                B      OLOK1            BR-IF OLAP NOT AVAIL  7  04365  J 04395
2723                B      TYP1                                7  04372  J 01087
2724                DCW    @NO BR OLAP CH 1@,G                15  04393
2725      OLOK1     BCE    INC1,TAD1,1      LOOP TAD           12  04395  B 04248 01001 1
2726                NOPWM                                      1  04407  N
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PGLIN     LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
2727      SW15R     B      SRC1-1            RE- READ               7   04408  J 03937
2728      * ******************************************************
2729      *              CHANNEL TWO READ
2730      * ******************************************************
2731                NOPWM                    BR IF NO READY         1   04415  N
2732      CH2R      B      *&8                DRIVES ON CH 1         7   04416  J 04430
2733                B      SW23R-13                                  7   04423  J 04449
2734      PS22R     CW     ZERO&2             MARK CH FINISHED       6   04430  ¤ 01225
2735                SW     SW23R              SET BR ARND COMP       6   04436  , 04462
2736                B      IS7010             BR NEXT CH             7   04442  J 04947
2737                BW     SWC2&7,CH2-46X1    BR- DRV OUT OF TEST    12  04449  V 04738 018T4 1
2738                NOPWM                                             1   04461  N
2739      SW23R     B      SWC2&7             BR FIRST TIME          7   04462  J 04738
2740                NOP                       SWITCH                 1   04469  N
2741      SRD2      BOL2   *-6                                       7   04470  J 04470 2
2742                BA2    *&8                BR ON ANY ERROR        7   04477  X 04491 G M
2743                B      NOERR2             BR IF NO ERRORS        7   04484  J 04613
2744                MLCS   READ2&3,MSGEX&15   DR AND CH NO           12  04491  D 04844 06553 3
2745                MLCS   @2@                 TO ERROR MSG           6   04503  D 01762
2746                MLCS   READ2&1,CHCODE     SET UP                 12  04509  D 04842 01692 3
2747                MLCS   @X@,CHSTAT          CH ALTER               12  04521  D 01763 01693 3
2748                MLCS   READ2&3,TDNO         ROUTINE                12  04533  D 04844 01708 3
2749                MLNA   C2,DRFINR&5         ERROR ROUTINE          12  04545  D 01167 06634 /
2750                MLNA   TM2,TEMPR&10         ADDRESSES FOR          12  04557  D 01972 06692 /
2751                MLNA   PM2,PERMR&10          CH TWO                12  04569  D 01187 06756 /
2752                MLNA   @079990,MZM&5                               12  04581  D 01768 06946 /
2753                SW     SW25R              RE-READ SWITCH         6   04593  , 04940
2754                B      RDERRT             BR- ERROR ROUTINE      7   04599  J 06384
2755                B      CLR2               BR TO READ             7   04606  J 04793
2756      NOERR2    MLNA   RD2,CMPREC&5        COMP ROUTINE           12  04613  D 08970 05802 /
2757                MLNA   CP2,CMPCNT&10        ADDRESSES             12  04625  D 01207 05825 /
2758                MLCS   READ2&3,CMSG&15                            12  04637  D 04844 05860 3
2759                MLCS   @2@                                        6   04649  D 01762
2760                MLCS   @2@,LMMSG           CH NO TO LM CHK MSG    12  04655  D 01762 06872 3
2761                MLCS   @0@,XXX             ZERO ERROR COUNT       12  04667  D 01761 08981 3
2762                NOP                       SWITCH ARND            1   04679  N
2763      SW22R     B      SW27R-1          IDENT MOVES               7   04680  J 04717
2764                MLCB   RAREA2&1,RD21&1&X15                        12  04687  D 08001 03M17 Q L
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PGLIN	LABEL	OPCOD	OPERAND	
2765		MLCS	READ2&3,RD21&5&X15	
2766		MLCS	@2@	
2767		NOP	LOAD MODE CHECK SWITCH	
2768	SW27R	BCE	CHKLM,TAD6,1	BR TO LM CHK ROUT
2769		NOP		SWITCH ARND
2770	SWC2	B	CMPRUT	BR TO COMPARE ROUT
2771		CW	SW23R	
2772	XXXR2	BCE	PS22R,CH2&X1,	BR-ALL DRVS READ
2773		BW	IS7010,CH2&X1	-DRV OUT OF TEST
2774		MLCS	CH2&X1,READ2&3	DR NO TO READ
2775	INQ2	BNQ	ITR	INQUIRY REQUEST
2776		CW	SW25R	DONT RE-READ
2777	CLR2	CS	RAREA2&954	CLEAR READ AREA
2778		CS		**
2779		CS		**
2780		CS		**
2781		CS		**
2782		CS		**
2783		CS		**
2784		CS		**
2785		CS		**
2786		CS		**
2787		MLCWS	WMGM,RAREA2&X14	DEFINE RECORD LENGTH
2788		SW	RAREA2	*
2789		NOP		SWITCH
2790		BOL2	*-6	WAIT FI SCOPE LOOP
2791	LOOPR2	BA2	*&1	
2792	READ2	RTB	21,RAREA2	READ TAPE
2793		NOPWM		SWITCH
2794	BOLR2	BOL2	OLOK2	BR- OVERLAP
2795		BCB2	READ2	BR- BUSY
2796		BNR2	IS7010	BR- NOT READY
2797		BCE	OLOK2,TAD4,1	BR IF NOT USING OLAP
2798		BCE	*&8,SYS1&7,1	BR-IF OLAP AVAIL
2799		B	OLOK2	BR-IF OLAP NOT AVAIL
2800		B	TYP1	
2801		DCW	@NC BR OLAP CH 2@,G	
2802	OLOK2	BCE	INC2,TAD1,1	LOOP TA?

CT	ADDRS	INSTRUCTION
12	04699	D 04844 03AM1 3
6	04711	D 01762
1	04717	N
12	04718	B 06764 01006 1
1	04730	N
7	04731	J 05790
6	04738	¤ 04462
12	04744	B 04430 018T8
12	04756	V 04947 018T8 1
12	04768	D 018T8 04844 3
7	04780	J 01011 Q
6	04787	¤ 04940
6	04793	/ 08954
1	04799	/
1	04800	/
1	04801	/
1	04802	/
1	04803	/
1	04804	/
1	04805	/
1	04806	/
1	04807	/
12	04808	D 01007 08M.0 7
6	04820	, 08000
1	04826	N
7	04827	J 04827 2
7	04834	X 04841 M
10	04841	M ¤81 08000 R
1	04851	N
7	04852	J 04927 2
7	04859	X 04841 2
7	04866	X 04947 1
12	04873	B 04927 01004 1
12	04885	B 04904 01263 1
7	04897	J 04927
7	04904	J 01087
15	04925	
12	04927	B 04780 01001 1

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PGLIN     LABEL     OPCOD  OPERAND                                    CT  ADDRS  INSTRUCTION
2803                NOPWM                                              1  04939  N
2804      SW25R     B      SR02-1              RE-READ                 7  04940  J 04469
2805      IS7010    BCE    CH3R,SYS1&14,1      BR IF CH 3 OR 4 AVAIL. 12  04947  B 13000 01270 1
2806                BCE    CH4R,SYS1&15,1      BR IF CH 4 ONLY        12  04959  B 13542 01271 1
2807                CW     ZERO&3,ZERO&4       TO BYPASS CH 3&4       11  04971  ¤ 01226 01227
2808                B      NXTREC              BR TO UPDATE ROUTINE    7  04982  J 04993
2809                H                                                  1  04989  .
2810                ORG    7000                                           07000
2811      *                      CH 3&4 READ ROUTINES READ INTO
2812      *                       CH 1 & 2 READ AREAS.  THESE
2813      *                       ROUTINES ARE MOVED TO 13000
2814      *                       IN THE READ INITALIZATION IF
2815      *                       THE COMPUTER IS A 7010.
2816      *                       SEE THE BACK OF THIS LISTING
2817      *                       FOR ACTUAL ADDRESSES.
2818      *          ******************************************
2819      *              CHANNEL THREE READ
2820      *          ******************************************
2821      CH3RZ     NOPWM                      BR IF NO READY          1  07000  N
2822                B      PS33R                ORIVES ON CH 3        7  07001  J 13015
2823                B      SW33R-13                                   7  07008  J 13034
2824                CW     ZERO&3              MARK CH FINISHED       6  07015  ¤ 01226
2825                SW     SW33R               SET BR ARND COMP       6  07021  , 13047
2826                B      CH4R                BR TO NEXT CH          7  07027  J 13542
2827                BW     SWC3&7,CH3-4&X1     BR- DRV OUT OF TEST   12  07034  V 13330 018X2 1
2828                NOPWM                                              1  07046  N
2829                B      SWC3&7              BR FIRST TIME          7  07047  J 13330
2830                NOP                        SWITCH                 1  07054  N
2831                DCW    @J@                                        1  07055
2832                DC     I3R2                                       5  07060  13055
2833                DC     3                                          1  07061
2834                DCW    @3@                 BRANCH                 1  07062
2835                DC     I3R1                 ANY                   5  07067  13076
2836                DC     @M@                   ERROR                1  07068
2837                B      NOERR3              BR IF NO ERRORS        7  07069  J 13205
2838                MLCS   READ3Z&3,MSGEX&15   DR AND CH NO           12  07076  D 13436 06553 3
2839                MLCS   @3@                  TO ERROR MSG           6  07088  D 01769
2840                MLCS   READ3Z&1,CHCODE      SET UP                12  07094  O 13434 01692 3
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PGLIN     LABEL     OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
2841                MLCS   @3@,CHSTAT          CH ALTER     12  07106  D 01769 01693 3
2842                MLCS   READ3Z&3,TDNO         RDUTINE     12  07118  D 13436 01708 3
2843                MLNA   C3,DRFINR&5         ERROR ROUTINE  12  07130  D 01172 06634 /
2844                MLNA   TM3,TEMPR&10          ADDRESSES FOR 12  07142  D 01977 06692 /
2845                MLNA   PM3,PERMR&10          CH THREE      12  07154  D 01192 06756 /
2846                MLNA   @15999@,MZM&5                      12  07166  D 01774 06946 /
2847                SW     SW35R                RE-READ SWITCH  6  07178  , 13535
2848                B      RDERRT               BR- ERROR RDUTINE  7  07184  J 06384
2849                B      CLR3                 BR TO READ     7  07191  J 13385
2850                B      XXXR3                AROUND COMP ON ERROR  7  07198  J 13336
2851                MLNA   RD3,CMPREC&5         COMP ROUT      12  07205  D 08975 05802 /
2852                MLNA   CP3,CMPCNT&10         ADDRESSES     12  07217  D 01212 05825 /
2853                MLCS   READ3Z&3,CMSG&15                   12  07229  D 13436 05860 3
2854                MLCS   @3@                                6  07241  D 01769
2855                MLCS   @3@,LMMSG            CH NO TO LM CHK MSG  12  07247  D 01769 06872 3
2856                MLCS   @0@,XXX              ZERO ERROR COUNT  12  07259  D 01761 08981 3
2857                NOP                         SWITCH ARND    1  07271  N
2858                B      SW37R-1           IDENT MOVES      7  07272  J 13309
2859                MLCB   RAREA3&1,RD31&1&X15                12  07279  D 16001 03CM4 L
                                                                             Q
2860                MLCS   READ3Z&3,RD31&5&X15                12  07291  D 13436 03CM8 3
                                                                             Q
2861                MLCS   @3@                                6  07303  D 01769
2862                NOP          LOAD MODE CHECK SWITCH       1  07309  N
2863                BCE    CHKLM,TAD6,1         BR TO LM CHK RDUT  12  07310  B 06764 01006 1
2864                NOP                                       1  07322  N
2865                B      CMPRUT               BR TO COMPARE RDUT  7  07323  J 05790
2866                CW     SW33R                             6  07330  ¤ 13047
2867                BCE    PS33R,CH3&X1,        BR- ALL DRIVES READ  12  07336  B 13015 018X6
2868                BW     CH4R,CH3&X1            - DRV OUT OF TEST  12  07348  V 13542 018X6 1
2869                MLCS   CH3&X1,READ3Z&3      DR NO TO READ  12  07360  D 018X6 13436 3
2870                BNQ    ITR                  INQUIRY REQUEST  7  07372  J 01011 Q
2871                CW     SW35R                DONT RE-READ   6  07379  ¤ 13535
2872                CS     RAREA3&954           CLEAR READ AREA  6  07385  / 16954
2873                CS                                **       1  07391  /
2874                CS                                **       1  07392  /
2875                CS                                **       1  07393  /
2876                CS                                **       1  07394  /
2877                CS                                **       1  07395  /
2878                CS                                **       1  07396  /
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PGLIN     LABEL     OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
2879                CS                    **                1  07397  /
2880                CS                    **                1  07398  /
2881                CS                    **                1  07399  /
2882                MLCWS  WMGM,RAREA3&X14  DEFINE RECORD LENGTH  12  07400  0 01007 16M.0 7
2883                SW     RAREA3                 *          6  07412  , 16000
2884                NOP                   SWITCH            1  07418  N
2885                DCW    @J@             WAIT IF          1  07419
2886                DC     SL3              SCOPE           5  07424  13419
2887                DC     3                                1  07425
2888                DCW    @3@                              1  07426
2889                DC     READ3Z                           5  07431  13433
2890                DC     @M@                              1  07432
2891      READ3     DCW    @MMB1@          READ             4  07433
2892                DC     RAREA3           TAPE            5  07441  16000
2893                DC     @R@                              1  07442
2894                NDPWM                                   1  07443  N
2895                DCW    @J@             BR-OVERLAP       1  07444
2896                DC     DLOK3                            5  07449  13522
2897                DC     3                                1  07450
2898                DCW    @3@             BRANCH           1  07451
2899                DC     READ3Z           BUXY            5  07456  13433
2900                DC     2                                1  07457
2901                DCW    @3@             BRANCH           1  07458
2902                DC     CH4R             NOT READY       5  07463  13542
2903                DC     1                                1  07464
2904                BCE    OLOK3,TAD4,1    BR IF NOT USING OLAP  12  07465  B 13522 01004 1
2905                BCE    DN8R3,SYS1&7,1                   12  07477  B 13496 01263 1
2906                8      DLOK3           BR-IF OLAP NOT AVAIL  7  07489  J 13522
2907                8      TYP1                             7  07496  J 01087
2908                DCW    @OIONT BR OLAP CH 3@,G           18  07520
2909                BCE    INC3,TAD1,1     LOOP TAD         12  07522  B 13914 01001 1
2910                NDPWM                                   1  07534  N
2911                8      13R2-1          RE-READ          7  07535  J 13054
2912      *         ********************************************
2913      *              CHANNEL FOUR READ
2914      *         ********************************************
2915      CH4RZ     NDPWM                  BR IF NO READY    1  07542  N
2916                8      PS44R            DRIVES ON CH 4  7  07543  J 13557
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PGLIN  LABEL   OPCOD  OPERAND                  CT  ADDRS  INSTRUCTION
2917           B      SW43R-13                  7  07550  J 13576
2918           CW     ZERO&4    MARK CH FINISHED  6  07557  ¤ 01227
2919           SW     SW43R     SET BR ARND COMP  6  07563  , 13589
2920           B      NXTREC    BR TO UPDATE RECORD  7  07569  J 04993
2921           BW     SWC4&7,CH4-4&X1  BR- DRV OUT OF TEST  12  07576  V 13872 019/0 1
2922           NOPWM                            1  07588  N
2923           B      SWC4&7    BR FIRST TIME     7  07589  J 13872
2924           NOP               SWITCH           1  07596  N
2925           DCW    @J@                        1  07597
2926           DC     I4R1       ANY             5  07602  13597
2927           DC     4                          1  07603
2928           DCW    @1@       BRANCH           1  07604
2929           DC     I4R2       ANY             5  07609  13618
2930           DC     @M@       ERROR            1  07610
2931           B      NOERR4    BR IF NO ERRORS   7  07611  J 13747
2932           MLCS   READ4Z&3,MSGEX&15  DR AND CH NO  12  07618  D 13978 06553 3
2933           MLCS   @4@        TO ERROR MSG     6  07630  D 01775
2934           MLCS   READ4Z&1,CHCODE  SET UP      12  07636  D 13976 01692 3
2935           MLCS   @1@,CHSTAT  CH ALTER         12  07648  D 01749 01693 3
2936           MLCS   READ4Z&3,TCNO  ROUTINE       12  07660  D 13978 01708 3
2937           MLNA   C4,DRFINR&5  ERROR ROUTINE   12  07672  D 01177 06634 /
2938           MLNA   TM4,TEMPR&10  ADDRESSES      12  07684  D 01982 06692 /
2939           MLNA   PM4,PERMR&10  FOR CH 4       12  07696  D 01197 06756 /
2940           MLNA   @16999@,MZM&5               12  07708  D 01780 06946 /
2941           SW     SW45R     RE-READ SWITCH    6  07720  , 14077
2942           B      RDERRT    BR- ERROR ROUTINE  7  07726  J 06384
2943           B      CLR4      BR TO READ        7  07733  J 13927
2944           B      XXXR4     AROUND COMP ON ERROR  7  07740  J 13878
2945           MLNA   RD4,CMPREC&5  COMP ROUT      12  07747  D 08980 05802 /
2946           MLNA   CP4,CMPCNT&10  ADDRESSES     12  07759  D 01217 05825 /
2947           MLCS   READ4Z&3,CMSG&15            12  07771  D 13978 05860 3
2948           MLCS   @4@                         6  07783  D 01775
2949           MLCS   @4@,LMMSG  CH NO TO LM CHK MSG  12  07789  D 01775 06872 3
2950           MLCS   @0@,XXX    ZERO ERROR COUNT  12  07801  D 01761 08981 3
2951           NOP               SWITCH ARND      1  07813  N
2952           B      SW47R-1    IDENT MOVES      7  07814  J 13851
2953           MLCS   RAREA4&1,RD41&1&X15         12  07821  D 17001 03EA1 L
2954           MLCS   READ4Z&3,RD41&5&X15          12  07833  D 13978 03EA5 3
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PGLIN     LABEL     OPCOD   OPERAND                                  CT  ADDRS  INSTRUCTION
2955                MLCS    @4@                                       6  07845  D 01775
2956                NDP             LOAD MODE CHECK SWITCH            1  07851  N
2957                BCE     CHKLM,TAD6,1      BR TO LM CHK ROUT      12  07852  B 06764 01006 1
2958                NOP                                               1  07864  N
2959                B       CMPRUT            BR TO COMPARE ROUT      7  07865  J 05790
2960                CW      SW43R                                     6  07872  ¤ 13589
2961                BCE     PS44R,CH4&X1,     BR-ALL DRIVES READ     12  07878  B 13557 019/4
2962                BW      NXTREC,CH4&X1       -DRIVE OUT OF TEST    12  07890  V 04993 019/4 1
2963                MLCS    CH4&X1,READ4Z&3   DR NO TO READ          12  07902  D 019/4 13978 3
2964                BNQ     ITR               INQUIRY REQUEST         7  07914  J 01011 Q
2965                CW      SW45R             DONT RE-READ            6  07921  ¤ 14077
2966                CS      RAREA4&954        CLEAR READ AREA         6  07927  / 17954
2967                CS                          **                    1  07933  /
2968                CS                          **                    1  07934  /
2969                CS                          **                    1  07935  /
2970                CS                          **                    1  07936  /
2971                CS                          **                    1  07937  /
2972                CS                          **                    1  07938  /
2973                CS                          **                    1  07939  /
2974                CS                          **                    1  07940  /
2975                CS                          **                    1  07941  /
2976                MLCWS   WMGM,RAREA4&X14    DEFINE RECORD LENGTH  12  07942  D 01007 17M.Q. 7
2977                SW      RAREA4                  *                 6  07954  , 17000
2978                NOP                        SWITCH                 1  07960  N
2979                DCW     @J@               WAIT IF                 1  07961
2980                DC      SL4                SCOPE                  5  07966  13961
2981                DC      4                   LOOP                  1  07967
2982                DCW     @1@                                       1  07968
2983                DC      READ4Z                                    5  07973  13975
2984                DC      @M@                                       1  07974
2985      READ4     DCW     @M.B1@            READ                    4  07975
2986                DC      RAREA4             TAPE                   5  07983  17000
2987                DC      @R@                                       1  07984
2988                NOPWM                                             1  07985  N
2989                DCW     @J@               BR-OLAP                 1  07986
2990                DC      OLCK4                                     5  07991  14064
2991                DC      4                                         1  07992
2992                DCW     @1@               BRANCH                  1  07993
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PGLIN     LABEL     OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
2993                DC     READ4Z          BUSY              5  07998  13975
2994                DC     2                                 1  07999
2995                DCW    @1@             BRANCH            1  08000
2996                DC     NXTREC           NOT READY        5  08005  04993
2997                DC     1                                 1  08006
2998                BCE    OLOK4,TAD4,1    BR IF NOT USING OLAP 12  08007  B 14064 01004 1
2999                BCE    DNBR4,SYS1&7,1  BR-IF OLAP AVAIL  12  08019  B 14038 01263 1
3000                B      OLOK4           BR-IF OLAP NOT AVAIL 7  08031  J 14064
3001                B      TYP1                              7  08038  J 01087
3002                DCW    @DIONT BR CLAP CH 4@,G           18  08062
3003                BCE    INQ4,TAD1,1     LOOP TAD         12  08064  B 13372 01001 1
3004                NOPWM                                    1  08076  N
3005                B      I4R1-1          RE-READ           7  08077  J 13596
3006                B      NXTREC                            7  08084  J 04993
3007                H                                        1  08091  .
3008                DC     @+@                               1  08092
3009                ORG    4993                                 04993
3010      * ************************************************
3011      *              RECORD UPDATE
3012      * ************************************************
3013      NXTREC    BW     UPREAD,ZERO&4   BR ON WM          12  04993  V 03861 01227 1
3014                BW     UPREAD                            6  05005  V 03861
3015                BW     UPREAD                            6  05011  V 03861
3016                BW     UPREAD                            6  05017  V 03861
3017                NOPWM                  BR AFTER          1  05023  N
3018      SWU1      B      COUNTR           FIRST REC        7  05024  J 05202
3019                SW     SW12R,SW22R     SET CH1 & 2 SWITCHES 11  05031  , 04148 04680
3020                SW     SW17R,SW27R     AFTER READING THE 11  05042  , 04186 04718
3021                SW     SWC1,SWC2       IDENT. RECORD     11  05053  , 04199 04731
3022                BCE    *&8,SYS1,X                        12  05064  B 05083 01256 X
3023                B      NO34B           BR IF NOT A 7010  7  05076  J 05116
3024                SW     SW32R,SW42R     SET CH 3 & 4 SWITCHES 11  05083  , 13272 13814
3025                SW     SW37R,SW47R     AFTER READING THE 11  05094  , 13310 13852
3026                SW     SWC3,SWC4       IDENT RECORD      11  05105  , 13323 13865
3027      NO34B     SW     X5-2,SWU1                         11  05116  , 00047 05024
3028                ZA     @950@,X5        INITIALIZE X5     11  05127  M 01783 00049
3029                SW     X8-4                              6  05138  , 00060
3030                MLCA   -950,X8                           12  05144  D 01786 00064 T
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PGLIN  LABEL   OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
3031           ZA     &9,X14   INITIALIZE FOR FIRST REC LENGTH  11  05156  Q
                                                                   M 01787 00094
3032           MLCA   @01@,WKAR1D     INITALIZE REC ID. NO.   12  05167  D 01789 08988 T
3033           S      WKAR10            CLEAR WKAR10           6  05179  S 06987
3034           S      VVV               ZERO                   6  05185  S 08984
3035           SW     PATRN&X5,SWU1     WM TO STOP COMP        11  05191  , 09##0 05024
3036  COUNTR   A      @1@,VVV           STEP COUNT             11  05202  A 01749 08984
3037           A      @1@,ZRER                                 11  05213  A 01749 06965
3038           MLNA   ZRER,ZRE                                 12  05224  D 06965 09958 /
3039           C      VVV,ONE01         SEE IF 100TH. PASS     11  05236  C 08984 01010
3040           BE     *&8               BR EQUAL                7  05247  J 05261 S
3041           B      RRCUT             NEXT REC ALL DRVS       7  05254  J 03794
3042           S      VVV               ZERO                    6  05261  S 08984
3043           A      @1@,WKARID        STEP REC ID NO.        11  05267  A 01749 08988
3044           MLCA   WKARID,CMSG&29    MOVE TO MESSAGE        12  05278  D 08988 05874 T
3045           C      WKARID,@21@    SEE IF ALL RECS READ      11  05290  C 08988 01791
3046           BU     CLPTRN                                   7  05301  J 05327 /
3047           S      ZRER                                     6  05308  S 06965
3048           BE     REWOND            BR IF TAPE MARK NOT    7  05314  J 05390 S
3049           H      REWOND             DETECTED ON READ      6  05321  . 05390
3050  CLPTRN   CW     PATRN&X5          CLEAR WM FROM PATRN     6  05327  ¤ 09##0
3051           A      &5,WKAR10         STEP WKAR10            11  05333  A 01792 06987
3052           S      WKAR10,X5         DECREASE X5            11  05344  S 06987 00049
3053           A      WKAR10,X8      STEP COMPARE INDEX        11  05355  A 06987 00064
3054           A      WKAR10,X14     STEP REC LENGTH INDEX     11  05366  A 06987 00094
3055           SW     PATRN&X5          WM TO STOP COMP        6  05377  , 09##0
3056           B      RRCUT             NXT REC ALL DRVS       7  05383  J 03794
3057  * ************************************************
3058  *              REWIND DRIVES
3059  * ************************************************
3060  REWOND   CW     SWR1&1,SWR2&1     INITALIZE              11  05390  ¤ 05510 05536
3061           CW     SWR3&1,SWR4&1      SWITCHES              11  05401  ¤ 05587 05638
3062           BA1    *&1               RESET INTERLOCK         7  05412  R 05419 G
                                                                   M
3063           BCE    *&7,SYS1&13,1     BR IF CH 2 AVAIL.      12  05419  B 05437 01269 1
3064           CW     NOX2              CLEAR WORD MARK         6  05431  ¤ 05474
3065           BCE    *&7,SYS1&14,1     BR IF CH 3 AVAIL.      12  05437  B 05455 01270 1
3066           CW     NOX3              CLEAR WORD MARK         6  05449  ¤ 05482
3067           BCE    *&7,SYS1&15,1     BR IF CH 4 AVAIL.      12  05455  B 05473 01271 1
3068           CW     NOX4              CLEAR WORD MARK         6  05467  ¤ 05490
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PGLIN     LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
3069                NOP                                              1  05473  N
3070      NOX2      BA2    *&1                RESET INTERLOCK       7  05474  X 05481 GM
3071                NOP                                              1  05481  N
3072      NOX3      OCW    @3@                RESET INTERLOCK       1  05482
3073                DC     IOLK3                                     5  05487  05489
3074                OC     @G Ma@                                    1  05488
3075      IOLK3     NOP                                              1  05489  N
3076      NOX4      OCW    @1@                RESET INTERLOCK       1  05490
3077                DC     IOLK4                                     5  05495  05497
3078                OC     @G M@                                     1  05496
3079      IOLK4     SW     X10-4                                     6  05497  , 00070
3080                S      X10                ZERO X10              6  05503  S 00074
3081      SWR1      NOPWM                     SWITCH                1  05509  N
3082                B      SWR2               BR NEXT CH            7  05510  J 05535
3083                SW     SWR1&1                                   6  05517  , 05510
3084                BBE    STRWD,CH1&4,GM     BR IF NOT A BLANK     12 05523  W 05681 01804 GM
3085      SWR2      NOPWM                                            1  05535  N
3086                B      SWR3                                      7  05536  J 05586
3087                SW     SWR2&1                                    6  05543  , 05536
3088                BBE    *&8,CH2&4,GM       BR IF NOT A BLANK     12 05549  W 05568 01842 GM
3089                B      SWR3               BR NEXT CH            7  05561  J 05586
3090                ZA     &1,X10             FOR CH 2 CODES        11 05568  QM 01793 00074
3091                B      STRWD              BR TO REWIND          7  05579  J 05681
3092      SWR3      NOPWM                                            1  05586  N
3093                B      SWR4               BR NEXT CH            7  05587  J 05637
3094                SW     SWR3&1                                    6  05594  , 05587
3095                BBE    *&8,CH3&4,GM       BR IF NOT A BLANK     12 05600  W 05619 01880 GM
3096                B      SWR4               BR NEXT CH            7  05612  J 05637
3097                ZA     &2,X10                                   11 05619  QM 01744 00074
3098                B      STRWD                                    7  05630  J 05681
3099      SWR4      NOPWM                                            1  05637  N
3100                B      ROSUMW             BR ROUT FINISHED      7  05638  J 05901
3101                SW     SWR4&1                                    6  05645  , 05638
3102                BBE    *&8,CH4&4,GM       BR IF NOT A BLANK     12 05651  W 05670 01918 GM
3103                B      ROSUMW             BR ROUT FINISHED      7  05663  J 05901
3104                ZA     &3,X10                                   11 05670  QM 01794 00074
3105      STRWD     MLCS   @0@,RWDX&3         ZERO OR NO            12 05681  D 01761 05755 3
3106                MLCS   CHCP&X10,RWDX&1    CHANNEL               12 05693  0 03R00 05753 3
```

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PGLIN  LABEL   OPCOD  OPERAND                    CT  ADDRS  INSTRUCTION
3107           MLCS   TANB&X10,BAYX  CODES       12  05705  D 09R08 05764 3
3108           MLCS   TANB&X10,BCBX  BR BUSY     12  05717  D 09R08 05757 3
3109   STPWD   SW     RWDX&3         STEP         6  05729  , 05755
3110           A      &1,RWDX&3       DRIVE      11  05735  A 01793 05755
3111           CW     RWDX&3           NUMBER     6  05746  ¤ 05755
3112   RWDX    RWD    11             REWIND       5  05752  U 0U1 R
3113   BCBX    BCB1   RWDX                        7  05757  R 05752 2
3114   BAYX    BA1    *&1                         7  05764  R 05771 M
3115           BCE    SWR1,RWDX&3,9  NEXT CH IF A 9  12  05771  B 05509 05755 9
3116           B      STPWD          NEXT DRIVE   7  05783  J 05729
3117   * ************************************************
3118   *              COMPARE ROUTINE
3119   * ************************************************
3120   CMPRUT  SBR    CMPRET&5       STORE BAR    7  05790  G 05893 B
3121   CMPREC  C      0&X8,PATRN&954  COMPARE RECORD 11 05797  C 00.00 09954
3122           BE     CMPRET         BR EQUAL     7  05808  J 05888 S
3123   CMPCNT  A      &1,00000&X15   ADD 1 TO COMP CNT 11 05815  A 01793 00MM0
3124           BCE    TSTH,TAD0,1    BY-PASS TYPE IF A 1 12 05826  B 05876 01000 1
3125           B      TYP1           COMP ERROR MSG  7  05838  J 01087
3126    CMSG   DCW    @COMP ERROR TD  REC ID.NO.  @,G 30 05845
3127   TSTH    BCE    *&8,TAD2,1                  12  05876  B 05895 01002 1
3128   CMPRET  B      0              RETURN       7  05888  J 00000
3129           H      CMPRET         HALT         6  05895  . 05888
3130   * ************************************************
3131   *              TYPE ERROR SUMMARY
3132   * ************************************************
3133   RDSUMW  B      TYP1                        7  05901  J 01087
3134           DCW    @TDW TDR TEMP PERM COMP@,G  22 05929
3135           CW     SWXR1,SWXR2                 11 05931  ¤ 05978 06083
3136           CW     SWXR3                       6  05942  ¤ 06147
3137           SW     X7-4,X8-4                   11 05948  , 00055 00060
3138   BEGNER  S      X8                          6  05959  S 00064
3139           S                                  1  05965  S
3140   STPREC  A      &4,X8                       11 05966  A 01752 00064
3141           NOPWM                  SWITCH       1  05977  N
3142   SWXR1   B      SWXR2-1                     7  05978  J 06082
3143           BCE    STPR1,CH1&X8,  BR IF LAST DR CH 1  12 05985  B 06069 01000
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PGLIN     LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
3144                BW     ADD23,CH1&X8   STEP INDEX TO NEXT DRIVE  12  05997  V 06051 01Q00 1D
3145                MRCWG  RD11&X7,ERLINE     MOVE ERROR SUMMARY    12  06009  D 02YH9 06028 L
3146      TYPSUM    B      TYP1              TYPE SUMMARY LINE       7  06021  J 01087
3147       ERLINE   DCW    @                      @,G                22  06028
3148      ADD23     A      &23,X7            STEP TO NEXT DRIVE      11  06051  A 01748 00059
3149                B      STPREC            NEXT DRV SUMMARY        7  06062  J 05966
3150      STPR1     SW     SWXR1                                     6  06069  , 05978
3151                B      BEGNER            NEXT CH                 7  06075  J 05959
3152                NOPWM                                            1  06082  N
3153      SWXR2     B      SWXR3-1                                   7  06083  J 06146
3154                BCE    STPR2,CH2&X8,     BR AFTER LAST DRV       12  06090  B 06133 01Q38
3155                BW     ADD23,CH2&X8   STEP INDEX TO NEXT DRIVE   12  06102  V 06051 01Q38 1D
3156                MRCWG  RD21&X7,ERLINE     MOVE ERROR SUMMARY    12  06114  D 03#I6 06028 L
3157                B      TYPSUM            CHANNEL 2 TYPE          7  06126  J 06021
3158      STPR2     SW     SWXR2                                     6  06133  , 06083
3159                B      BEGNER            NEXT CH                 7  06139  J 05959
3160                NOPWM                                            1  06146  N
3161      SWXR3     B      SWXR4                                     7  06147  J 06210
3162                BCE    STPR3,CH3&X8,     BR AFTER LAST DRV       12  06154  B 06197 01Q76
3163                BW     ADD23,CH3&X8   STEP INDEX TO NEXT DRIVE   12  06166  V 06051 01Q76 1D
3164                MRCWG  RD31&X7,ERLINE     MOVE ERROR SUMMARY    12  06178  D 03TM3 06028 L
3165                B      TYPSUM            CHANNEL 3 TYPE          7  06190  J 06021
3166      STPR3     SW     SWXR3                                     6  06197  , 06147
3167                B      BEGNER            NEXT CH                 7  06203  J 05959
3168      SWXR4     BCE    INTCG,CH4&X8,     BR AFTER LAST DRV       12  06210  B 06253 01R14
3169                BW     ADD23,CH4&X8   STEP INDEX TO NEXT DRIVE   12  06222  V 06051 01R14 1D
3170                MRCWG  RD41&X7,ERLINE     MOVE ERROR SUMMARY    12  06234  D 03VA0 06028 L
3171                B      TYPSUM            CHANNEL 4 TYPE          7  06246  J 06021
3172      INTCG     BCE    RDHSKP,TAD3,1     REPEAT PASS FOR M-CH    12  06253  B 02466 01003 1
3173                MLNA   NXTST,6    SET UP BRANCH TO NEXT TEST     12  06265  D 01962 00006 /
3174                B      TYP1                                      7  06277  J 01087
3175      * ****    CHANGE ABOVE INST TO J00400 FOR AUTOMATIC
3176      * ****    BRANCH TO NEXT TEST  AT END OF READ PASS
3177                DCW    @ INTERCHANGE TAPE@,G                     17  06300
3178                B      TYP1                                      7  06302  J 01087
3179                DCW    @ PRESS START TO RE-READ OR COMPUTER@     35  06343
3180                       @ RESET AND START TO GO NEXT TEST@,G      32  06375
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PGLIN     LABEL     OPCOD  OPERAND                                    CT  ADDRS  INSTRUCTION
3181                NOP                                               1  06377  N
3182                H      RDHSKP                                     6  06378  . 02466
3183      * ********************************************************
3184      *                 READ ERROR ROUTINE
3185      * ********************************************************
3186      RDERRT    SBR    RETR&5              READ RETURN            7  06384  G 06657 B
3187                SBR    RETR2&5             READ RETURN            7  06391  G 06717 B
3188                B      CHSTT               BR- CH ALTER ROUT      7  06398  J 01290
3189                MLCA   INDIC,MSGEX&10      RESET ERROR MSG       12  06405  D 08993 06548 T
3190                BNR1   *&13                                       7  06417  R 06436 1
3191                MLCS   @ @,MSGEX&6                               12  06424  D 01795 06544 3
3192                BER1   *&13                                       7  06436  R 06455 4
3193                MLCS   @ @,MSGEX&7                               12  06443  D 01795 06545 3
3194                BEF1   *&13                                       7  06455  R 06474 8
3195                MLCS   @ @,MSGEX&8                               12  06462  D 01795 06546 3
3196                BNT1   *&13                                       7  06474  R 06493 S B
3197                MLCS   @ @,MSGEX&9                               12  06481  D 01795 06547 3
3198                BWL1   *&13                                       7  06493  R 06512 -
3199                MLCS   @ @,MSGEX&10                              12  06500  D 01795 06548 3
3200                BEX1   *&13,/       TYPE ON INDIC. 1 OR A         7  06512  R 06531 /
3201                BCE    WORRR,TAD0,1        TYPEOUT TAD           12  06519  B 06555 01000 1
3202                B      TYP1                                       7  06531  J 01087
3203      MSGEX     DCW    @INDC. 148AB TD  @,G                      16  06538
3204      WORRR     BCE    *&8,TAD2,1          HALT ON ERROR TAD     12  06555  B 06574 01002 1
3205                B      *&2                                        7  06567  J 06575
3206                H                          HALT                   1  06574  .
3207      RERRT     BCE    REWDND,MSGEX&8,B      - TAPE MARK RD FIN  12  06575  B 05390 06546 8
3208                BCE    DRFINR,MSGEX&6,1    BR- NOT READY         12  06587  B 06629 06544 1
3209                BCE    NFOILR,MSGEX&7,4      - DATA CHECK        12  06599  B 06659 06545 4
3210      A         BCE    MZM,MSGEX&10,B        - W.L.R.            12  06611  B 06941 06548 B
3211      HALTR1    H      DRFINR&6            HALT ON INDC. 2,A,B    6  06623  . 06635
3212      DRFINR    SW     0&X1          MARK DRIVE OUT OF TEST       6  06629  . 000#0
3213                SW     X6-4                                       6  06635  . 00050
3214                ZA     @7@,X6                                    11  06641  M 01796 00054
3215      RETR      B      0&X6          RETURN TO BAR & INDEX        7  06652  J 00#.0
3216      NFOILR    A      @1@,XXX             STEP TEMP COUNT       11  06659  A 01749 08981
3217                BCE    SETPRM,XXX,0        BR IF 9TH. RE-READ    12  06670  B 06719 08981 0
3218      TEMPR     A      &1,00000&X15        ADD 1 TO TEMP COUNT   11  06682  A 01793 00MM0
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PGLIN  LABEL    OPCOD  OPERAND                                  CT  AODRS  INSTRUCTION
3219           BSP    11                  BACK SPACE            5  06693  U %U1 B
3220           BCB1   *-11                                      7  06698  R 06693 2
3221           BA1    *&1                 1                     7  06705  R 06712 GM
3222    RETR2  B      0                   RETURN                7  06712  J 00000
3223    SETPRM MLCS   TEMPR&10,SUBTRR&10  MOVE TEMP AORS LOC   12  06719  D 06692 06745 3
3224           MLCS                                             1  06731  0
3225           MLCS                                             1  06732  0
3226           MLCS                                             1  06733  0
3227           MLCS                                             1  06734  0
3228    SUBTRR S      a9a,00000    SUB PERM CNT FROM TEMP       11  06735  S 01797 00000
3229    PERMR  A      &1,00000&X15  ADD 1 TO PERM ERR COUNT      11  06746  A 01793 QQMM0
3230           B      DRFINR                                    7  06757  J 06629
3231    * **************************************************
3232    * ******  CHECK LOAO MODE ANY MISSING WMKS  **********
3233    * **************************************************
3234    CHKLM  SBR    RFLMCK&5                                  7  06764  G 06904 B
3235           MLCS   CMPREC&5,BONWM&10  ADORS OF LAST CHAR     12  06771  0 05802 06842 3
3236           MLCS                                             1  06783  D
3237           MLCS                                             1  06784  D
3238           MLCS                                             1  06785  0
3239           MLCS                                             1  06786  0
3240           MLCS   CMPREC&5,CWMKS&5    IN REAO AREA          12  06787  D 05802 06929 3
3241           MLCS                                             1  06799  0
3242           MLCS                                             1  06800  0
3243           MLCS                                             1  06801  D
3244           MLCS                                             1  06802  0
3245           S      WKAR13              ZERO COUNT            6  06803  S 06984
3246    SPWMCK A      a1a,WKAR13          STEP COUNT BY 1      11  06809  A 01749 06984
3247    BRONL  BCE    CWMKS,WKAR13,6      BR ON 6 TH. LOOP     12  06820  B 06924 06984 6
3248    BONWM  BW     STBAR,00000         BR ON WMK            12  06832  V 06906 00000 1
3249           NOP                                              1  06844  N
3250           B      TYP1                                      7  06845  J 01087
3251    LMMSG  OCW    @LOAD MODE FAILED CH. @,G                21  06872
3252           BCE    *&8,TAD2,1          HALT TAD             12  06874  B 06893 01002 1
3253           B      CWMKS                                     7  06886  J 06924
3254           H      CWMKS    HALT & BR TO CLEAR WORO MARKS    6  06893  . 06924
3255    RFLMCK B      0                                         7  06899  J 00000
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PGLIN     LABEL     OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
3256      STBAR     S      @1@,BONWM&10      DECREASE ADDRS BY 1  11  06906  S 01749 06842
3257                B      SPWMCK                                  7  06917  J 06809
3258      CWMKS     CW     00000             CLEAR                 6  06924  ¤ 00000
3259                CW                        WORD                 1  06930  ¤
3260                CW                         MARKS               1  06931  ¤
3261                CW                          FOR                1  06932  ¤
3262                CW                           COMPARE           1  06933  ¤
3263                B      RFLMCK                                  7  06934  J 06899
3264      MZM       MLCB   0&X14,ZMS                               12  06941  D 00M.0 06972 L
3265                B      TYP1                                    7  06953  J 01087
3266                DCW    @R @                                    2  06961
3267      ZRER      DCW    @0000@                                  4  06965
3268                DC     @ @                                     1  06966
3269                DCW    @W @                                    2  06968
3270      ZMS       DCW    @    @,G                                4  06972
3271                B      RETR2                                   7  06974  J 06712
3272      WKAR11    DCW    @000@                                   3  06983
3273      WKAR13    DCW    @ @                                     1  06984
3274      WKAR10              @000@                                 3  06987
3275                LTORG  1722   STORE LITERALS BELOW 2000          01722
3275                       @B@                                     1  01722
3275                       @U@                                     1  01723
3275                       @M@                                     1  01724
3275                       @L@                                     1  01725
3275                       RETR2                                   5  01730  06712
3275                       RDERRT                                  5  01735  06384
3275                       @@@                                     1  01736
3275                       @*@                                     1  01737
3275                       @$@                                     1  01738
3275                       @#@                                     1  01739
3275                       @%@                                     1  01740
3275                       @¤@                                     1  01741
3275                       @M@                                     1  01742
3275                       @.@                                     1  01743
3275                       &2                                      1  01744
3275                       @36@                                    2  01746
3275                       &23                                     2  01748
3275                       @1@                                     1  01749
```

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PGLIN     LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
3275                       @46@                                     2  01751
3275                       &4                                       1  01752
3275                       @23@                                     2  01754
3275                       @R@                                      1  01755
3275                       @069999@                                 5  01760
3275                       @0@                                      1  01761
3275                       @2@                                      1  01762
3275                       @X@                                      1  01763
3275                       @079999@                                 5  01768
3275                       @3@                                      1  01769
3275                       @159999@                                 5  01774
3275                       @4@                                      1  01775
3275                       @169999@                                 5  01780
3275                       @950@                                    3  01783
3275                       -950                                     3  01786
3275                       &9                                       1  01787
3275                       @01@                                     2  01789
3275                       @21@                                     2  01791
3275                       &5                                       1  01792
3275                       &1                                       1  01793
3275                       &3                                       1  01794
3275                       @ @                                      1  01795
3275                       @7@                                      1  01796
3275                       @9@                                      1  01797
3276      *  *************   END OF TEST   *****************
3277      *              LOCATION OF CH 3 & 4 READ ROUTINES.
3278      *              BALANCE OF CARDS REMOVED FROM DECK
3279                 ORG    13000                                        13000
3280      * ********************************************************
3281      *              CHANNEL THREE READ
3282      * ********************************************************
3283      CH3R       NOPWM                        BR IF NO READY       1  13000  N
3284                 B      PS33R                 DRIVES ON CHAN 3     7  13001  J 13015
3285                 B      SW33R-13                                   7  13008  J 13034
3286      PS33R      CW     ZERO&3                MARK CH FINISHED     6  13015  ¤ 01226
3287                 SW     SW33R                 SET BR ARND COMP     6  13021  , 13047
3288                 B      CH4R                                       7  13027  J 13542
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PGLIN  LABEL   OPCOD  OPERAND                  CT  ADDRS  INSTRUCTION
3289           BW     SWC3&7,CH3-4&X1  BR- DRV OUT OF TEST  12  13034  V 13330 018X2 1
3290           NOPWM                               1  13046  N
3291   SW33R   B      SWC3&7           BR FIRST TIME      7  13047  J 13330
3292           NOP                     SWITCH             1  13054  N
3293   I3R2    DCW    @J@                                1  13055
3294           DC     I3R2                               5  13060  13055
3295           DC     3                                  1  13061
3296           DCW    @3@              BRANCH            1  13062
3297           DC     I3R1              ANY              5  13067  13076
3298           DC     @M@ (G)            ERROR           1  13068
3299           B      NOERR3           BR IF NO ERRORS    7  13069  J 13205
3300   I3R1    MLCS   READ3Z&3,MSGEX&15  OR AND CH NO     12  13076  D 13436 06553 3
3301           MLCS   @3@               TO ERROR MSG      6  13088  D 14092
3302           MLCS   READ3Z&1,CHCODE    SET UP           12  13094  D 13434 01692 3
3303           MLCS   @3@,CHSTAT          CH ALTER        12  13106  D 14092 01693 3
3304           MLCS   READ3Z&3,TCNO         ROUTINE       12  13118  D 13436 01708 3
3305           MLNA   C3,DRFINR&5      ERROR ROUTINE       12  13130  D 01172 06634 /
3306           MLNA   TM3,TEMPR&10      ADDRESSES FOR      12  13142  D 01977 06692 /
3307           MLNA   PM3,PERMR&10        CH THREE         12  13154  D 01192 06756 /
3308           MLNA   @16954@,MZM&5                        12  13166  D 14097 06946 /
3309           SW     SW35R             RE-READ SWITCH     6  13178  . 13535
3310           B      RDERRT            BR- ERROR ROUTINE  7  13184  J 06384
3311           B      CLR3              BR TO READ         7  13191  J 13385
3312           B      XXXR3             AROUND COMP ON ERROR 7  13198  J 13336
3313   NOERR3  MLNA   RD3,CMPREC&5      COMP ROUT          12  13205  D 08975 05802 /
3314           MLNA   CP3,CMPCNT&10       ADDRESSES        12  13217  D 01212 05825 /
3315           MLCS   READ3Z&3,CMSG&15                     12  13229  D 13436 05860 3
3316           MLCS   @3@                                  6  13241  D 14092
3317           MLCS   @3@,LMMSG         CH NO TO LM CHK MSG 12  13247  D 14092 06872 3
3318           MLCS   @0@,XXX           ZERO ERROR COUNT   12  13259  D 14098 08981 3
3319           NOP                     SWITCH ARND         1  13271  N
3320   SW32R   B      SW37R-1          IDENT MOVES         7  13272  J 13309
3321           MLCB   RAREA3&1,RD31&1&X15                  12  13279  D 16001 03CM4 (Q) L
3322           MLCS   READ3Z&3,RD31&5&X15                  12  13291  D 13436 03CM8 (Q) 3
3323           MLCS   @3@                                  6  13303  D 14092
3324           NOP          LOAD MODE CHECK SWITCH         1  13309  N
3325   SW37R   BCE    CHKLM,TAD6,1     BR TO LM CHK ROUT  12  13310  B 06764 01006 1
3326           NOP                                         1  13322  N
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PGLIN   LABEL    OPCOD  OPERAND                  CT  ADDRS  INSTRUCTION
3327    SWC3     B      CMPRUT     BR TO COMPARE ROUT   7  13323  J 05790
3328             CW     SW33R                           6  13330  ¤ 13047
3329    XXXR3    BCE    PS33R,CH3&X1,   BR- ALL DRIVES READ 12  13336  B 13015 018X6
3330             BW     CH4R,CH3&X1       - DRV OUT OF TEST 12  13348  V 13542 018X6 1
3331             MLCS   CH3&X1,READ3Z&3  OR NO TO READ     12  13360  D 018X6 13436 3
3332    INQ4     BNQ    1TR        INQUIRY REQUEST      7  13372  J 01011 Q
3333             CW     SW35R      DONT RE-READ         6  13379  ¤ 13535
3334    CLR3     CS     RAREA3&954 CLEAR READ AREA      6  13385  / 16954
3335             CS                      **             1  13391  /
3336             CS                      **             1  13392  /
3337             CS                      **             1  13393  /
3338             CS                      **             1  13394  /
3339             CS                      **             1  13395  /
3340             CS                      **             1  13396  /
3341             CS                      **             1  13397  /
3342             CS                      **             1  13398  /
3343             CS                      **             1  13399  /
3344             MLCWS  WMGM,RAREA3&X14  DEFINE RECORD LENGTH 12  13400  D 01007 16M.0 7
3345             SW     RAREA3                  *        6  13412  , 16000
3346             NOP                     SWITCH         1  13418  N
3347    SL3      DCW    @J@        WAIT IF              1  13419
3348             DC     SL3         SCOPE               5  13424  13419
3349             DC     3                               1  13425
3350    LOOPR3   DCW    @3@                             1  13426
3351             DC     READ3Z                          5  13431  13433
3352             DC     @M@                             1  13432
3353    READ3Z   DCW    @MMB1@     READ                 4  13433
3354             DC     RAREA3      TAPE                5  13441  16000
3355             DC     @R@                             1  13442
3356             NOPWM                                  1  13443  N
3357    BOLR3    DCW    @J@        BR-OVERLAP           1  13444
3358             DC     DLCK3                           5  13449  13522
3359             DC     3                               1  13450
3360             DCW    @3@        BRANCH               1  13451
3361             DC     READ3Z      BUXY                5  13456  13433
3362             DC     2                               1  13457
3363             DCW    @3@        BRANCH               1  13458
3364             DC     CH4R        NOT READY           5  13463  13542
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PGLIN     LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
3365                DC     1                                         1  13464
3366                BCE    OLOK3,TAD4,1        BR IF NOT USING OLAP 12  13465  B 13522 01004 1
3367                BCE    DN8R3,SYS1&7,1      BR-IF OLAP AVAIL     12  13477  B 13496 01263 1
3368                B      OLCK3               BR-IF OLAP NOT AVAIL  7  13489  J 13522
3369      DN8R3     B      TYP1                                      7  13496  J 01087
3370                DCW    @DIDNT BR OLAP CH 3@,G                   18  13520
3371      OLOK3     BCE    INC3,TAD1,1         LOOP TAD             12  13522  B 13914 01001 1
3372                NOPWM                                            1  13534  N
3373      SW35R     B      13R2-1              RE-READ               7  13535  J 13054
3374      * ********************************************************
3375      *               CHANNEL FOUR READ
3376      * ********************************************************
3377      CH4R      NOPWM                      BR IF NO READY        1  13542  N
3378                B      PS44R                DRIVES ON CH 4      7  13543  J 13557
3379                B      SW43R-13                                 7  13550  J 13576
3380      PS44R     CW     ZERO&4              MARK CH FINISHED      6  13557  ¤ 01227
3381                SW     SW43R               SET BR ARND COMP      6  13563  . 13589
3382                B      NXTREC              BR TO UPDATE RECORD   7  13569  J 04993
3383                BW     SWC4&7,CH4-4&X1     BR- DRV OUT OF TEST  12  13576  V 13872 019/0 1
3384                NOPWM                                            1  13588  N
3385      SW43R     B      SWC4&7              BR FIRST TIME         7  13589  J 13872
3386                NOP                        SWITCH                1  13596  N
3387      14R1      DCW    @J@                                       1  13597
3388                DC     14R1                 ANY                 5  13602  13597
3389                DC     4                                         1  13603
3390                DCW    @1@                 BRANCH                1  13604
3391                DC     14R2                 ANY                 5  13609  13618
3392                DC     @M@                 ERROR                 1  13610
3393                B      NOERR4              BR IF NO ERRORS       7  13611  J 13747
3394      14R2      MLCS   READ4Z&3,MSGEX&15   DR AND CH NO         12  13618  D 13978 06953 3
3395                MLCS   @4@                  TO ERROR MSG        6  13630  D 14099
3396                MLCS   READ4Z&1,CHCODE     SET UP               12  13636  D 13976 01692 3
3397                MLCS   @1@,CHSTAT           CH ALTER            12  13648  D 14100 01693 3
3398                MLCS   READ4Z&3,TCNO          ROUTINE           12  13660  D 13978 01708 3
3399                MLNA   C4,DRFINR&5         ERROR ROUTINE        12  13672  D 01177 06634 /
3400                MLNA   TM4,TEMPR&10          ADDRESSES          12  13684  D 01982 06692 /
3401                MLNA   PM4,PERMR&10            FOR CH 4         12  13696  D 01197 06756 /
3402                MLNA   @17954@,MZM&5                            12  13708  D 14105 06946 /
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PGLIN     LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
3403                SW     SW45R              RE-READ SWITCH         6  13720  , 14077
3404                B      RDERRT             BR- ERROR ROUTINE      7  13726  J 06384
3405                B      CLR4               BR TO READ             7  13733  J 13927
3406                B      XXXR4              AROUND COMP ON ERROR   7  13740  J 13878
3407      NOERR4    MLNA   RD4,CMPREC&5        COMP ROUT             12  13747  D 08980 05802 /
3408                MLNA   CP4,CMPCNT&10        ADDRESSES            12  13759  D 01217 05825 /
3409                MLCS   READ4Z&3,CMSG&15                          12  13771  D 13978 05860 3
3410                MLCS   @4@                                        6  13783  D 14099
3411                MLCS   @4@,LMMSG          CH NO TO LM CHK MSG   12  13789  D 14099 06872 3
3412                MLCS   @0@,XXX            ZERO ERROR COUNT      12  13801  D 14098 08981 3
3413                NOP                       SWITCH ARND            1  13813  N
3414      SW42R     B      SW47R-1          IDENT MOVES               7  13814  J 13851
3415                MLCB   RAREA4&1,RD41&1&X15                       12  13821  D 17001 03EA1 L
3416                MLCS   READ4Z&3,RD41&5&X15                       12  13833  D 13978 03EA5 3
3417                MLCS   @4@                                        6  13845  D 14099
3418                NOP          LOAD MODE CHECK SWITCH              1  13851  N
3419      SW47R     BCE    CHKLM,TAD6,1       BR TO LM CHK ROUT     12  13852  B 06764 01006 1
3420                NOP                                               1  13864  N
3421      SWC4      B      CMPRUT             BR TO COMPARE ROUT     7  13865  J 05790
3422                CW     SW43R                                     6  13872  ¤ 13589
3423      XXXR4     BCE    PS44R,CH4&X1,      BR-ALL DRIVES READ    12  13878  B 13557 019/4
3424                BW     NXTREC,CH4&X1        -DRIVE OUT OF TEST  12  13890  V 04993 019/4 1
3425                MLCS   CH4&X1,READ4Z&3     DR NO TO READ       12  13902  D 019/4 13978 3
3426      INQ3      BNQ    ITR                INQUIRY REQUEST        7  13914  J 01011 Q
3427                CW     SW45R              DONT RE-READ           6  13921  ¤ 14077
3428      CLR4      CS     RAREA4&954         CLEAR READ AREA        6  13927  / 17954
3429                CS                              **               1  13933  /
3430                CS                              **               1  13934  /
3431                CS                              **               1  13935  /
3432                CS                              **               1  13936  /
3433                CS                              **               1  13937  /
3434                CS                              **               1  13938  /
3435                CS                              **               1  13939  /
3436                CS                              **               1  13940  /
3437                CS                              **               1  13941  /
3438                MLCWS  WMGM,RAREA4&X14     DEFINE RECORD LENGTH  12  13942  D 01007 17M.0 7
3439                SW     RAREA4                    *                6  13954  , 17000
3440                NOP                       SWITCH                 1  13960  N
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
3441	SL4	DCW	@J@	WAIT IF	1	13961	
3442		DC	SL4	SCOPE	5	13966	13961
3443		DC	4	LOOP	1	13967	
3444	LOOPR4	DCW	@1@		1	13968	
3445		DC	READ4Z		5	13973	13975
3446		DC	@M@		1	13974	
3447	READ4Z	DCW	@M.B1@	READ	4	13975	
3448		DC	RAREA4	TAPE	5	13983	17000
3449		DC	@R@		1	13984	
3450		NOPWM			1	13985	N
3451	BOLR4	DCW	@J@	BR-OLAP	1	13986	
3452		DC	OLOK4		5	13991	14064
3453		DC	4		1	13992	
3454		DCW	@1@	BRANCH	1	13993	
3455		DC	READ4Z	BUSY	5	13998	13975
3456		DC	2		1	13999	
3457		DCW	@1@	BRANCH	1	14000	
3458		DC	NXTREC	NOT READY	5	14005	04993
3459		DC	1		1	14006	
3460		BCE	OLOK4,TAD4,1	BR IF NOT USING OLAP	12	14007	B 14064 01004 1
3461		BCE	DNBR4,SYS1&7,1	BR-IF OLAP AVAIL	12	14019	B 14038 01263 1
3462		B	OLOK4	BR-IF OLAP NOT AVAIL	7	14031	J 14064
3463	DNBR4	B	TYP1		7	14038	J 01087
3464		DCW	@DIONT BR OLAP CH 4@,G		18	14062	
3465	OLOK4	BCE	INC4,TAD1,1	LOOP TAD	12	14064	B 13372 01001 1
3466		NOPWM			1	14076	N
3467	SW45R	B	I4R1-1	RE-READ	7	14077	J 13596
3468		B	NXTREC		7	14084	J 04993
3469		H			1	14091	. J02000
3470		END	2000		1	14092	
3470			@3@		5	14097	
3470			@16954@		1	14098	
3470			@0@		1	14099	
3470			@4@		1	14100	
3470			@1@		5	14105	
3470			@17954@				

END OF ASSEMBLY